FAA Safety BRIEFING

November/December 2013

Your source for general aviation news and information

FLIGHT STANDARDS

Our Finest Hour p. 6

Making the Paper Work p. 17

Buying a Bird p. 18

Federal Aviation Administration

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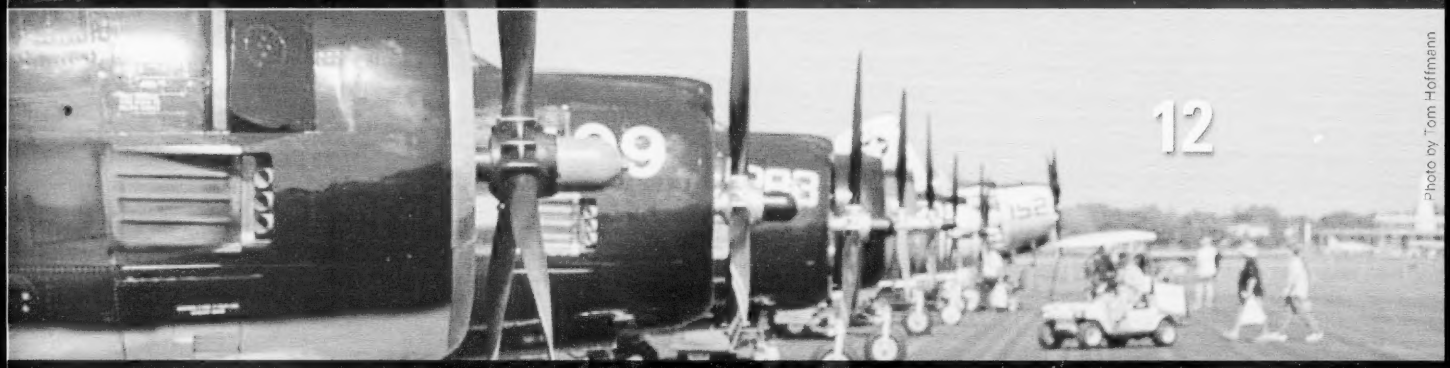

Photo by Tom Hoffmann

The November/December 2013 issue of *FAA Safety Briefing* explores the critical function of FAA's Flight Standards Service in promoting safety within our National Airspace System. Articles focus on the diverse roles and responsibilities of Flight Standards and highlight the important contributions of its many dedicated safety professionals.

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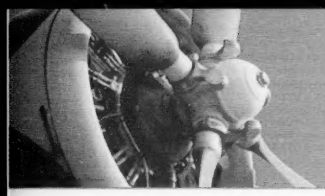

Jumpseat

JOHN ALLEN
DIRECTOR, FLIGHT STANDARDS SERVICE

It is with very mixed feelings indeed that I write to let you know that, after 22 years in the FAA, I have decided to retire from public service. It was not an easy decision. I care deeply for the people in the FAA family. I believe passionately in the work that we do, and I am very proud of all that we have accomplished since I became director of the FAA Flight Standards Service (AFS) in 2008.

So why leave? The novelist C.S. Lewis once noted that:

> *It may be hard for an egg to turn into a bird: it would be a jolly sight harder for it to learn to fly while remaining an egg. ... (Y)ou cannot go on indefinitely being just an ordinary, decent egg. We must be hatched or go bad.*

Legendary businessman Jack Welch put it a different way: *Change before you have to.*

A combination of personal and professional circumstances has been driving me to consider the next phase of my life, and to ponder where and how I might best contribute to aviation. I have also been anxious to ensure that I do not stay in this position just because it is familiar and comfortable. At this point I believe I have done all I can do to set a course for the future of Flight Standards, so I have been increasingly thinking it was time for me to vacate the left seat and transfer the controls to the next generation of leaders. The precipitating factor for my decision to retire was an unexpected offer to serve as vice president of safety for a part 121 air carrier — a place where I believe my aviation experience will allow me to make the maximum contribution at this stage of my life and career.

While I am both excited and energized by the prospect of this new challenge, the reality of leaving the FAA is painful. I am reminded of the observation by writer Anatole France, who noted that:

> *All changes, even the most longed for, have their melancholy; for what we leave behind us is a part of ourselves.*

There is no doubt that I am leaving a part of my heart with the FAA Flight Standards Service. I will never forget what an honor and privilege it has been to lead this organization. There is no doubt that my successors will appreciate the blessings I have enjoyed from having the finest, most dedicated, and highly professional staff any leader could hope to have.

While it's easy and understandable for airmen to think of the FAA as a large and monolithic organization, the truth is very different. Like all large organizations, the FAA is divided into smaller units with specific functions that contribute to accomplishing its overall safety mission. These constituent parts are made up of hundreds or, in the case of the Flight Standards Service, thousands of experienced and dedicated aviation safety professionals. It is thus very fitting that this issue of the magazine focuses on the role of the Flight Standards Service in promoting safety in all aspects of our National Airspace System.

I will never forget what an honor and privilege it was to lead the people of the FAA Flight Standards Service.

Starting with the next issue of *FAA Safety Briefing*, AFS Deputy Director for Policy John Duncan, whom you will meet in this issue's FAA Faces department, will assume command of this space as director of the Flight Standards Service.

Thank you for giving me the opportunity to "meet" you through this column. I look forward to crossing paths with you in my new aviation role and, as always, I wish you safe and happy flying.

Best,
John Allen

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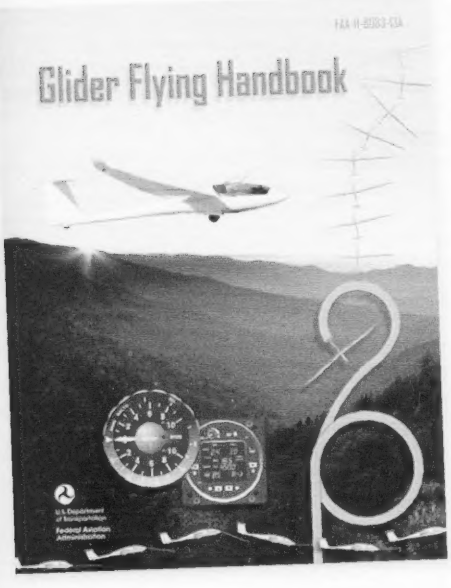
Glider Handbook Revised

A revised 2013 Glider Flying Handbook, which supersedes the 2003 version, is available online at http://1.usa.gov/18pRzCI.

The handbook is designed as a technical manual for applicants who are preparing for a glider category rating and for currently certificated glider pilots who wish to improve their knowledge. Certificated flight instructors will find this handbook a valuable training aid, since detailed coverage of aeronautical decision-making, components and systems, aerodynamics, flight instruments, performance limitations, ground operations, flight maneuvers, traffic patterns, emergencies, soaring weather, soaring techniques, and cross-country flight are included.



Legislation Aims to Reduce Costs While Boosting Safety

The Small Aircraft Revitalization Act of 2013 — passed by the House and, as of press time, waiting on a Senate vote — will direct a final rule to advance the safety and continued development of small airplanes by reorganizing the certification requirements to streamline the approval of safety advancements. If passed, the final rule must meet certain consensus-based standards and FAA Part 23 Reorganization Aviation Rulemaking Committee objectives, including:

- establishment of a regulatory regime for small airplane safety;
- the establishment of broad, outcome-driven objectives that will spur small plane innovation and technology adoption;
- the replacement of current, prescriptive requirements under 14 CFR part 23 with performance-based regulations; and
- the use of FAA-accepted consensus standards to clarify how 14 CFR part 23 safety objectives may be met using specific small plane safety designs and technologies.

Although it could take a few years to see measurable safety improvements after it is signed into law, the end result will increase both affordability and safety for small GA aircraft. To review the Act, go to http://www.govtrack.us/congress/bills/113/hr1848/text.

NOTAM on NOTAMs

Notices to Airmen (NOTAMs), online at https://pilotweb.nas.faa.gov, will look a little different starting Oct. 1. The changes bring the U.S. NOTAM system closer to ICAO compliance making them easier for airmen to read. Here are a few examples:

- The words "PILOT REPORTED" will precede the word "FICON" (Field Condition NOTAM) when the FICON is reported by a pilot during periods when field conditions are not being monitored.
- Every NOTAM will have an effective and expiration time.
- Units of measure are reformatted, e.g., 500 is now 500FT to clarify feet.
- Changes to usable runway length and declared distances will be spelled out.

To see the full change order, go to http://1.usa.gov/19nzMeN.

AD Affects 1,326 Beechcraft Airplanes

An airworthiness directive (AD) for certain Beechcraft (type certificate previously held by Hawker Beechcraft) Models 58, 95-C55, E55, and

Photo by H. Dean Chamberlain

56TC airplanes; and Hawker Beechcraft Models 58P and 58TC airplanes (type certificates previously held by Raytheon) was issued Aug. 20. This AD was prompted by reports of elevator balance weights becoming loose or failing because the balance weight material was under strength and did not meet material specifications. This AD requires inspections of elevator balance weights and replacement of defective elevator balance weights.

Go to http://rgl.faa.gov to view all ADs.

Operations Underway for Newly Certificated UAS

On Sept. 12, 2013, ConocoPhillips launched an Insitu Scan Eagle UAS (unmanned aircraft system) from the research vessel Westward Wind, to perform marine mammal and ice surveys necessary to meet environmental and safety rules before drilling on the Chukchi Sea floor. The flight marks a significant milestone for the FAA's advancement of UAS operations in the National Airspace System.

Paving the way for this historic launch was an intensive effort from the FAA's UAS Integration Office and inspectors from the Aviation Safety Organization. The 2012 FAA Reauthorization Act requires the agency to establish a process in the three permanent Arctic areas where small UAS (sUAS) can operate for research and commercial purposes within one year of the bill's passage.

The newly approved commercial UAS operations came on the heels of the FAA issuing restricted category type certificates last July to Insitu's Scan Eagle X200 and AeroVironment's PUMA. Before that, obtaining an experimental airworthiness certificate, which specifically excludes commercial operations, was the only way the private sector could operate a UAS in the nation's airspace.

Coming soon will be the release of the Notice of Proposed Rulemaking for small, unmanned aircraft systems that will help establish standards for manufacturers and operators of UAS weighing less than 55 pounds. The FAA will use the ongoing UAS operations in the Arctic region as an important proving ground for UAS integration, much like Capstone research in that region led to the development of ADS-B, the cornerstone of NextGen.

A Global Hawk UAS

Photo by Tom Hoffmann

Safety Enhancement Topics

November:

Weather Information Technology

Photo courtesy of Garmin

December:

Aeronautical Decision Making

Risk Assessment Matrix

Likelihood	Severity			
	Catastrophic	Critical	Marginal	Negli
Probable	High	High	Serious	
Occasional	High	Serious		
Remote	Serious	Medium		
Improbable				

Please visit www.faa.gov/news/safety_briefing for more information on these and other topics.

U.S. Department
of Transportation

**Federal Aviation
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NextGen Helps Pilots Weather the Weather

With a new NextGen weather forecasting tool, emergency helicopter pilots know when they can safely land at off-airport sites. Weather reporting stations are usually located at airports, but the Helicopter Emergency Medical Services (HEMS) automated forecasting tool has been tailored by NextGen weather researchers to meet the needs of first responders who fly helicopters at low altitudes and land at off-airport sites, such as a highway, a farmer's field, or out in the wild. HEMS enhances safety and efficiency for helicopter pilots by using computer analysis to forecast weather conditions along a route between two or more airport observation stations, including ceiling, visibility, and other factors, such as thunderstorms.

Pilots on these life-saving missions need to know if they are likely to have adequate visibility to land at remote locations. If HEMS shows that visibility conditions are likely to be poor because of low clouds at a landing site, for example, rescuers can immediately send ground vehicles instead, rather than waiting until an aircraft has already flown to the location and is unable to land.

While still in trial use, HEMS eventually may be available to anyone flying where visibility is essential, including crop dusters or general aviation pilots planning to land on remote airstrips.

HEMS is showcased on the National Oceanic and Atmospheric Administration's web-based weather forecasting and observation service at http://weather.aero. Beginning in 2016, weather tools will be provided as part of NextGen's shared weather data capability.

Celebrate Aviation History Month

Did you know November is Aviation History Month? It's a great time to celebrate some of the remarkable achievements and advancements made in flight here in the United States. It's also a great time to go visit one of the many aviation museums around the country. There are hidden gems all over the country! What's your favorite aviation museum or historical marker? Send us a tweet at @FAASafetyBrief so we can share with everyone in the general aviation community.

FREDERICK E. TILTON, M.D.
FEDERAL AIR SURGEON

Expanding Opportunities

During the past year, the FAA's Civil Aerospace Medical Institute (CAMI), located in Oklahoma City, has added new equipment and facilities to expand the training opportunities provided to the public. Included is a new twist on an old topic (hypoxia), and a tool to address a new technology (night vision systems).

Portable Normobaric Hypoxia Training

Hypoxia in aviation is a constant threat to flight safety. Despite this, very few pilots and crewmembers have had "hands-on" training to combat this killer. CAMI was one of the first to offer hypoxia training to the civil aviation community through the use of specially designed altitude chambers.

CAMI's altitude chambers have been used successfully for well over 50 years and have an impressive safety record. But, they do have limitations. First, pilots have to be clear of any upper respiratory ailments that could cause ear and sinus issues. Second, even though the chambers are considered safe, there is still a remote chance of developing decompression sickness associated with unpressurized flights to high altitudes. Finally, the pilot has to travel to CAMI to get the training.

To circumvent these issues, CAMI has developed the Portable Reduced Oxygen Training Enclosure (PROTE). The PROTE uses technology that reduces the oxygen percentage to induce hypoxia and has some distinct advantages over existing altitude chambers. For starters, since mixed gas is used, there is no need to reduce the atmospheric pressure so it is less likely that issues with ears and sinuses, or decompression sickness will occur as they do when the aviator is exposed to altitudes of 18,000 feet or higher.

Another advantage of the PROTE is its portability. With it, participants can experience their own personal symptoms of hypoxia without having to travel all the way to Oklahoma. The device can be shipped to various locations and can be set up and running within two hours. Once it is operational, the participant walks in and sits down for five minutes to experience his or her personal hypoxia symptoms. After that, the individual dons an aviation oxygen mask and the symptoms disappear. The participant departs with specific knowledge on how to recognize and identify hypoxic symptoms in flight, which enables immediate corrective action. An aviation venue of at least three days is needed to offset the cost of transportation and manning.

If you are interested in getting the PROTE sent to your location, contact Rogers V. Shaw at 405-954-4837.

CAMI's NITE Lab Now Open for Pilots

The Night Imaging Training Environment (NITE) Lab is a CAMI training facility that specializes in demonstrating the functions and limitations of night vision goggles (NVGs). The NITE Lab can accommodate up to 20 participants and has specialized training aids to help NVG users and operators gain a better understanding of these vital safety devices.

The NITE Lab incorporates a 10′ x 10′ terrain board that is a 1-to-600 scale. The terrain board shows various terrain features such as deserts, rolling hills, and mountains, as well as open water. By seeing how each of these various terrains look when viewed with NVGs, the user can fully appreciate how some terrain features can be difficult or even impossible to see. The terrain board also simulates different moon phases and positions, which show how moonlight intensity and angle can directly alter the effectiveness of NVGs.

Several innovations can only be found in the NITE Lab. For example:

- a scale model of a general aviation aircraft with external lighting that can show the lights as being compatible or incompatible with NVGs
- theatrical smoke generator that shows the problems that various particles (smoke, dust, rain, haze) can cause when using NVGs
- authentic helicopter instrument panel with compatible and incompatible instrument lighting
- scale-model wind turbines that pose very unique problems for NVGs

If you are interested in scheduling NVG training, contact the NITE Lab manager, J.R. Brown, at 405-954-4837.

Frederick Tilton, M.D., M.P.H., received both an M.S. and an M.D. degree from the University of New Mexico and an M.P.H. from the University of Texas. During a 26-year career with the U.S. Air Force, Tilton logged more than 4,000 hours as a command pilot and senior flight surgeon flying a variety of aircraft. He currently flies the Cessna Citation 560 XL.

SUSAN PARSON

Our Finest Hour

A Goose, a Cactus, and a Happy Conclusion

Along with *Top Gun* and *The Hunt for Red October, Apollo 13* rounds out the trio of my favorite Friday night flicks. How can anyone *not* revel in the steely "failure is not an option" persona of Apollo 13 flight director Gene Kranz? My favorite Gene Kranz quote arises when he informs his grim-faced boss that, contrary to the disastrous outcome everyone expects, "I believe this is gonna be our finest hour."

In my opinion, the FAA's finest hour came on January 15, 2009, when an Airbus A-321 flying as Cactus (US Airways) 1549 crossed paths with a flock of Canada geese just after takeoff from New York's LaGuardia Airport. What followed — the "miracle on the Hudson" water landing — is now the stuff of legend. You probably don't have to think very hard to agree it was a "finest hour" experience for Captain Sully Sullenberger, First Officer Jeff Skiles, and the cabin crew. Same goes for the cool-headed New York departure controller. But allow me to explain how Cactus 1549 was also the FAA's finest hour and, in so doing, provide a brief guided tour of how this agency is organized to perform its safety mission.

In my opinion, the FAA's finest hour came when Cactus 1549 crossed paths with a flock of Canada geese just after takeoff from New York's LaGuardia Airport.

Failure Is *Not* an Option

As the FAA Administrator states in almost every speech he makes, safety is the FAA's top priority. Left unsaid is that when it comes to this kind of mission, failure is not an option for the FAA or any of its major "line of business" (LOB) components.

Logically enough, the FAA line of business that conducts most of the agency's safety work is called the Aviation Safety Organization (AVS). AVS sets standards, issues certifications on the basis of those standards, and manages the continued operational safety of certificated individuals and entities. The head of AVS is an Associate Administrator who reports directly to the Administrator (a presidential appointee confirmed by the Senate to a five-year term). AVS is composed of three services and four offices. All of them played a role in making Cactus 1549 the FAA's finest hour.

Flight Standards Service (AFS)

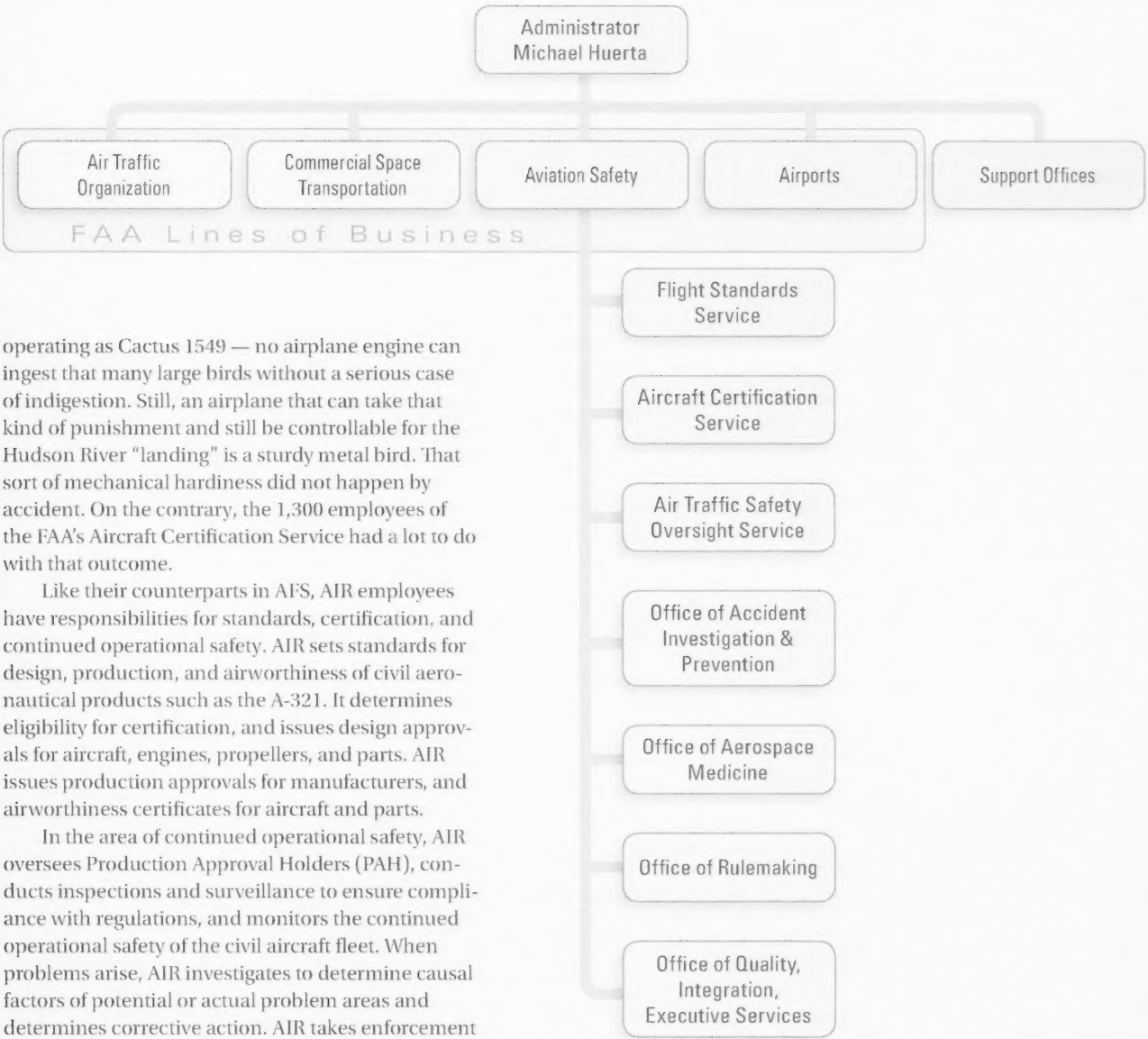
The work done by the 5,000 employees in AFS had a lot to do with setting the stage for the successful outcome of Cactus 1549. The largest service in AVS, Flight Standards (AFS) does exactly what its name implies. AFS sets standards for airmen (e.g., Captain Sully and his crew, mechanics, dispatchers, etc.), operators (e.g., US Airways), and air agencies (e.g., training centers), as well as for the continued airworthiness of aircraft and their many component parts. It issues certificates to airmen and air carriers who meet those standards and maintains certificated airman and aircraft records in the nation's Civil Aviation Registry.

By far, though, the biggest responsibility of AFS is *continued operational safety*. That's the FAA's term for its responsibility to ensure that, once certificated, individuals and entities continue to meet standards and operate safely in the National Airspace System (NAS). In the case of a major airline, AFS aviation safety inspectors (ASIs) assigned to the certificate management office for that airline conduct inspections and surveillance to ensure compliance with regulations. They investigate to determine causal factors of potential or actual problem areas and determine corrective action. If they find that the air carrier or any of its employees have violated FAA regulations, they take enforcement action.

By the way, other AFS functions include promoting system safety and providing safety education (e.g., through the FAASafety Team and publications like *FAA Safety Briefing* magazine).

Aircraft Certification Service (AIR)

No matter how stringent the certification requirements — and they are very demanding indeed for transport category aircraft like the A-321



operating as Cactus 1549 — no airplane engine can ingest that many large birds without a serious case of indigestion. Still, an airplane that can take that kind of punishment and still be controllable for the Hudson River "landing" is a sturdy metal bird. That sort of mechanical hardiness did not happen by accident. On the contrary, the 1,300 employees of the FAA's Aircraft Certification Service had a lot to do with that outcome.

Like their counterparts in AFS, AIR employees have responsibilities for standards, certification, and continued operational safety. AIR sets standards for design, production, and airworthiness of civil aeronautical products such as the A-321. It determines eligibility for certification, and issues design approvals for aircraft, engines, propellers, and parts. AIR issues production approvals for manufacturers, and airworthiness certificates for aircraft and parts.

In the area of continued operational safety, AIR oversees Production Approval Holders (PAH), conducts inspections and surveillance to ensure compliance with regulations, and monitors the continued operational safety of the civil aircraft fleet. When problems arise, AIR investigates to determine causal factors of potential or actual problem areas and determines corrective action. AIR takes enforcement action when FAA regulations have been violated.

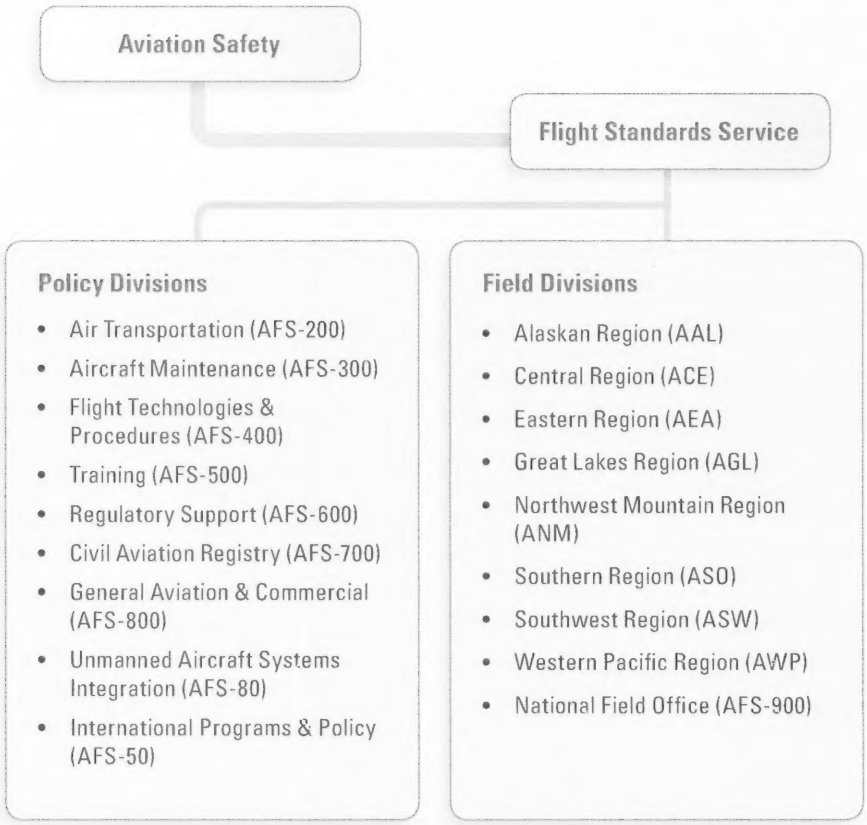
Air Traffic Safety Oversight Service (AOV)

That cool-headed controller who worked Cactus 1549 is an employee of the FAA's Air Traffic Organization (ATO) line of business (*see graphic*), but AVS played a role in that part, too. AOV, the newest service in AVS, has 130 employees. Its mission is to provide independent safety oversight of the ATO. AOV monitors ATO operations to determine compliance with established standards, rules, and directives. It conducts surveillance activities, including audits, independent reviews, and targeted inspections of ATO services and facilities. It develops, maintains, and approves the policy requirements for the ATO safety management system (SMS).

Office of Accident Investigation and Prevention (AVP)

You probably know that the National Transportation Safety Board (NTSB) has the lead in investigating all aviation accidents in the United States, but FAA employees (both headquarters and field) are involved as well. That's because the FAA has nine specific responsibilities associated with accident and incident investigation work.

Many accidents (e.g., virtually all GA accidents) are investigated by FAA aviation safety inspectors in FSDOs and other field offices, but there are also highly experienced professional accident investigators at FAA headquarters. These individuals, some of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• Central Region (ACE)
• Eastern Region (AEA)
• Great Lakes Region (AGL)
• Northwest Mountain Region (ANM)
• Southern Region (ASO)
• Southwest Region (ASW)
• Western Pacific Region (AWP)
• National Field Office (AFS-900)

whom participated in the Cactus 1549 investigation, are among the 72 employees of the AVS Office of Accident Investigation and Prevention. As the first part of the office name suggests, AVP coordinates FAA-wide participation in the investigation of aviation accidents and incidents.

As the second half of the office name indicates, the point of investigating is to find ways to prevent future occurrences. To that end, AVP conducts safety data analysis to identify trends and, on the basis of this analysis, helps develop standards for corrective measures. AVP also manages the agency-wide response to safety recommendations made by the NTSB and by FAA aviation safety inspectors.

Office of Aerospace Medicine (AAM)

Every pilot is familiar with the most visible functions of the Office of Aerospace Medicine, whose 450 employees oversee medical qualification and certification of airmen and other persons associated with safety in flight. Virtually all the major players in the Cactus 1549 accident (including the controller) held medical certificates issued on the basis of the standards set by AAM. AAM manages airman medical regulations, standards, policies, and procedures. It oversees the designated Aviation Medical Examiner (AME) system. In addition, AAM conducts aerospace medicine and human factors research, oversees aerospace medical education and agency health awareness, and manages the regulation and oversight of industry drug and alcohol testing programs.

Office of Rulemaking (ARM)

The rules and regulations that created the framework for certification of the aircraft and crew of Cactus 1549 were the work of many individuals and organizations throughout the FAA, but that work was spearheaded by the 30 employees of the FAA's Office of Rulemaking.

ARM has agency-wide responsibility to facilitate work on all phases of the very complex rulemaking process. Working with other services and offices, ARM establishes and maintains a system of priorities for rulemaking activities and schedules. Its employ-

ees work closely with program offices and the Office of the FAA Chief Counsel to process petitions for rulemaking as well as for exemptions from FAA regulations. ARM coordinates and chairs public meetings and formal or informal meetings on rulemaking activities, a function that includes the Aviation Rulemaking Advisory Committee.

Office of Quality, Integration, and Executive Services (AQS)

Though its role in events such as Cactus 1549 is less direct than that of other offices, the 60 employees of AQS still contributed to the "finest hour" outcome. That is because AQS manages administrative functions and business processes for AVS services and offices. One of its most important roles is to manage the AVS-wide Quality Management System (QMS), which helps ensure that the FAA follows its established internal standards and processes for the work it does.

Everyone Has a Role

While this article focuses on the role of the FAA's Aviation Safety Organization, you can see from the simplified organizational chart graphic that AVS is only one of the FAA's major lines of business. Employees of the Air Traffic Organization — the largest of the FAA lines of business — clearly played a part in the successful outcome of Cactus 1549. While this particular A-321 obviously did not land at any of the New York area airports, the professionals in the FAA's Airports line of business (ARP) ensure that airports used by major air carriers meet standards for safety — including availability of first responders (e.g., airport fire and rescue).

Safety is the FAA's top priority and in this kind of mission, failure is not an option for the FAA.

Though we in the FAA hope there will not be future "finest hour" opportunities of this kind, the agency can take pride in its contribution not just to Cactus 1549, but to the thousands of safe and uneventful journeys that occur in U.S. airspace every day.

Susan Parson (susan.parson@faa.gov, or @avi8trix for Twitter fans) is editor of FAA Safety Briefing. She is an active general aviation pilot and flight instructor.

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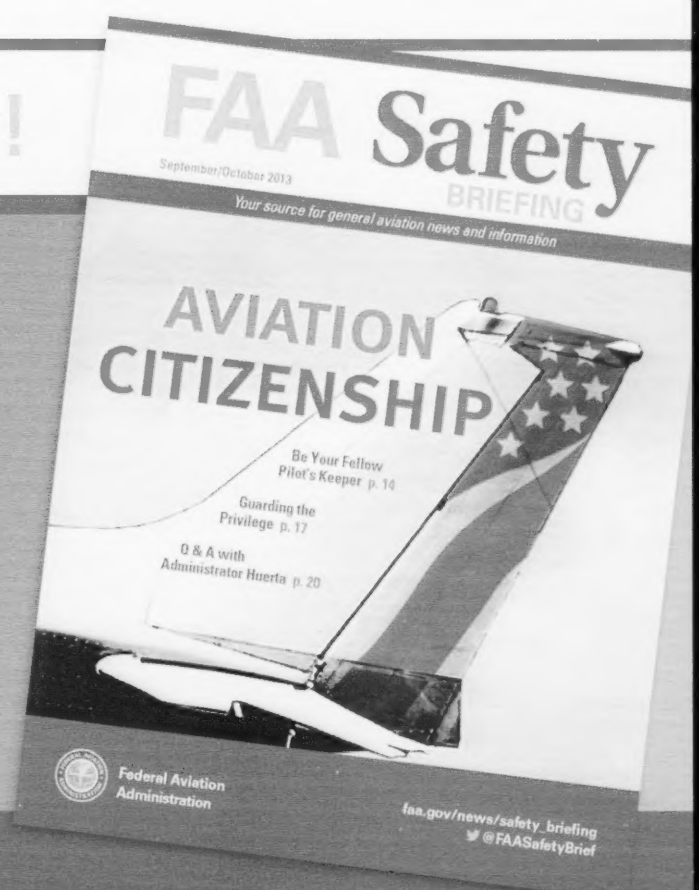


Your Local Field Office

When it comes to reporting accidents or low-flying aircraft, getting permits and certifications, enforcing airman and aircraft regulations, participating in safety seminars, or asking questions about aircraft modifications or maintenance issues, your local Flight Standards District Office (FSDO) is the place to start. There are 80 FSDOs covering 77 geographical areas of responsibility in the United States to choose from, which can be confusing when searching for the right field office.

The flight standards coverage areas are organized by county lines with a few exceptions in Alaska, Arizona, California, Maryland, Nevada, New Jersey, and Pennsylvania. The map shown here should help you figure out what FSDO to contact based on your location or where an incident occurred. This is up-to-date as of the publish date of this magazine.

Paul Cianciolo is an assistant editor and the social media lead for FAA Safety Briefing. He is a U.S. Air Force veteran, and a rated aircrew member and search and rescue team leader with the Civil Air Patrol.

1: Seattle (425) 227-2813
2: Spokane (509) 532-2340
3: Portland (Oregon) (503) 615-3200
4: Boise (208) 387-4000
5: Oakland (510) 748-0122
6: Sacramento (916) 422-0272
7: Reno (775) 858-7700
8: San Jose (408) 291-7681
9: Fresno (559) 454-0286
10: Las Vegas (702) 617-8500
11: Van Nuys (818) 904-6291
12: Riverside (951) 276-6701
13: Los Angeles (310) 725-6600
14: Long Beach (562) 420-1755
15: San Diego (858) 502-9882
16: Helena (406) 449-5270
17: Salt Lake City (801) 257-5020
18A: Casper * (800) 325-5785
18B: Denver * (800) 847-3808
** Casper FSDO shares and works within the Denver FSDO boundaries.*
19: Scottsdale (480) 419-0111
20: Albuquerque (505) 764-1200
21: Fargo (701) 492-5800
22: Rapid City (605) 737-3050
23: Lincoln (402) 475-1738
24: Wichita (316) 941-1200
25: Oklahoma City (405) 951-4200
26: Lubbock (806) 740-3800
27: San Antonio (210) 308-3300
28: Fairbanks (907) 474-0276
29: Anchorage (907) 271-2000
30: Juneau (907) 586-7532

Understanding the Role of the FSDO

PAUL CIANCIOLO

31: Honolulu † (808) 837-8300

† Service area includes American Samoa, Guam, and Northern Mariana Islands.

32: Minneapolis (612) 253-4400

33: Milwaukee (414) 486-2920

34: Des Moines (515) 289-3840

35A: Chicago O'Hare ‡ (847) 294-7900

35B: DuPage ‡ (630) 443-3100

‡ The FSDOs share same geographic area; however, Chicago O'Hare oversees Part 121 operations only and DuPage oversees general aviation.

36: Springfield (217) 744-1910

37: Kansas City (816) 329-4000

38: St. Louis (314) 890-4800

39: Little Rock (501) 918-4400

40: North Texas § (214) 277-8500

§ The Fort Worth Alliance and Dallas FSDOs were combined into North Texas as of Oct. 1, 2013.

41: Houston (281) 929-7000

42: Baton Rouge (225) 932-5900

43: Grand Rapids (616) 954-6657

44: East Michigan (734) 487-7222

45: South Bend (574) 245-4600

46: Indianapolis (317) 837-4400

47: Cleveland (440) 686-2001

48: Columbus (614) 255-3120

49: Cincinnati (513) 842-9600

50: Louisville (502) 753-4200

51: Memphis (901) 322-8600

52: Nashville (615) 324-1300

53: Jackson (601) 664-9800

54: Alabama & Northwest Florida (205) 876-1300

55: Atlanta (404) 474-5100

56: Tampa (813) 287-4900

57: Orlando (407) 812-7700

58A: South Florida ¶ (954) 641-6000

58B: San Juan ¶ (787) 764-2538

¶ The South Florida FSDO service area includes Puerto Rico and U.S. Virgin Islands.

59: Portland (Maine) (207) 780-3263

60: Albany (518) 785-5660

61: Rochester (585) 436-3880

62: Windsor Locks (860) 6a54-1000

63: Boston (781) 238-7500

64: Farmingdale || (631) 755-1300

65: New York City || (516) 228-8029

|| Farmingdale FSDO is responsible for all helicopter activity within the 5 boroughs of New York City; and New York City FSDO is responsible for Bermuda and Greenland, but it's not responsible for pilot examiners, airworthy examiners, inspection authorizations, FAASTeam, nor Flight Safety International at LaGuardia.

66: Teterboro (201) 556-6600

67: Allentown (610) 264-2888

68: Philadelphia (610) 595-1500

69: Harrisburg (717) 774-8271

70: Allegheny (412) 886-2580

71: Baltimore (410) 787-0040

72: Washington (703) 230-7664

73: Charleston (304) 347-5199

74: Richmond (804) 222-7494

75: Greensboro (336) 369-3900

76: Charlotte (704) 319-7020

77: South Carolina (803) 765-5931

JAMES WILLIAMS

Lifting *the* Curtain

Meet the People Behind the Policies that Affect GA

Let's say you want to earn a new pilot certificate or rating. You pull out your trusty tablet, open your favorite Federal Aviation Regulations (FAR) /Aeronautical Information Manual (AIM) app (you do have one, right?), and navigate to the appropriate section of Title 14 Code of Federal Regulations (14 CFR part 61). You read through the requirements for eligibility, aeronautical knowledge, and flight proficiency. You note the extent to which the rules permit you to use a flight training device, and you make a note to check the FAA's most recent advisory circular on FAA approval for basic and advanced aviation training devices. While you're in the neighborhood (sort of), you refresh your memory on currency requirements for your current certificate.

As you research this information, you may find yourself wondering who's responsible for all this material? The obvious answer — the FAA — is accurate. Given the focus of this issue, though, I'd like to introduce you to the specific part of the agency and to some of the people whose work can have a direct and all-encompassing impact on our day-to-day lives as pilots.

Meet the General Aviation and Commercial Division of the FAA's Flight Standards Service, known more simply as AFS-800. Aside from medical certification (see the January/February 2013 issue of *FAA Safety Briefing* for more on this topic), AFS-800 is the part of the FAA that has the greatest impact on some of the most basic aspects of airman certification. It is also the organization that houses this publication, so I am particularly partial, — but more on that in a while.

Photo by Tom Hoffmann

The Diversity Division

A former Flight Standards Service director was known for dubbing AFS-800 as the "potpourri division" in view of its everything-except-air-carrier range of responsibilities. Maybe it's a guy thing, but since potpourri is most definitely not my thing, I prefer to think of my home organization as the "diversity division." That's because no other division has a wider portfolio than AFS-800. This division's wide-ranging responsibilities reflect the breathtaking diversity of GA itself. AFS-800 has the task of developing and disseminating the policies that enable the regions and flight standards district offices to properly oversee such a varied group of stakeholders. AFS-800 is also involved in the creation and maintenance of most of the regulations that impact GA. That responsibility can range from reviewing requests for exemptions to directly writing or rewriting regulations. Any issue regarding the operation (piloting) of a GA aircraft is the business of AFS-800.

Who's Who

AFS-800 is composed of five branches: Planning and Program Oversight (AFS-805), Airmen Training and Certification (AFS-810), Commercial Operations (AFS-820), General Aviation Operations (AFS-830), and FAA Safety Team (FAASTeam/AFS-850).

The Planning and Program Oversight Branch (AFS-805) functions as the division's administrative hub. While these functions — budgeting, travel, and personnel — are crucial to the division's operations, they generally don't draw much interest from the general public. One notable exception is the publication you're reading right now: *FAA Safety Briefing* magazine is housed in AFS-805.

The Airman Training and Certification Branch (AFS-810) is very important to almost every GA pilot. "The AFS-810 branch is responsible for airman training and certification standards," branch manager Jeffery Smith explained. "This includes policy for pilot schools, pilots, flight instructors, and ground instructors. This branch has oversight for most of the content within 14 CFR part 61, almost all of part 141, and is responsible for the associated supporting guidance including handbooks and advisory circulars." This set of regulations addresses almost every facet of a non-commercial pilot's aviation life. So whether it concerns the rules under which you certificate or the rules under which you operate, the Aviation Safety Inspectors (ASI) who work in AFS-810 play a role in your life.

AFS-810 also has responsibility for policy on issues like qualification and use of Aviation Training Devices (ATDs), and requirements for Flight Instructor Refresher Courses (FIRCs). Another area where AFS-810 contributes is in the world of designees. If you've taken a check ride (practical test) for an airman certificate or rating in the last few decades, chances are good that you have flown with a Designated Pilot Examiner (DPE). AFS-810 works closely with the Regulatory Support Division (AFS-600 — more below) to set the standards, guidance, and policy for those who conduct practical tests on the FAA's behalf.

If your work or your passions lead you to fly for compensation, you will be working with policies and regulations managed by the *Commercial Operations Branch* (AFS-820). AFS-820's purview includes part 91 operations of corporate and turbine aircraft, very light jets, aerial work, fractional ownership (part 91K), large aircraft operations (part 125), rotorcraft external load operations (part 133), agricultural aircraft operations (part 137), public aircraft operations, and unmanned aircraft systems in coordination with other divisions.

"We support a wide spectrum of operations ranging from pleasure flying in privately owned single-engine piston aircraft and very light jets to more complex commercial operations such as agricultural aircraft operations and carriage of sports teams in large turbine aircraft," said acting manager Everette Rochon. In addition, AFS-820 covers Night Vision Goggle (NVG)/Night Vision Imaging Systems (NVIS) policy, aerial application (colloquially called "crop dusting") and North America Free Trade Agreement policy. Diverse? Definitely, and that's not even an exhaustive list!

Next on the list is the *General Aviation Operations Branch* (AFS-830). Need information on launching an amateur rocket or weather balloon? That's AFS-830. Need to know something about jumping out of an airplane (with a parachute, of course)? That's AFS-830. Need help understanding how FAA policy applies at an air show? That's AFS-830. "The AFS-830 Branch has policy and oversight of the personal and 'fun' aspects of aviation," branch manager Tom Glista told us. "This includes airshows and air races; parachuting; ultralights; and operations of light sport, amateur built , and ex-military aircraft," Glista continued. AFS-830 also is home to programs designed to provide designees for certification in experimental and vintage aircraft where traditional designees are not available.

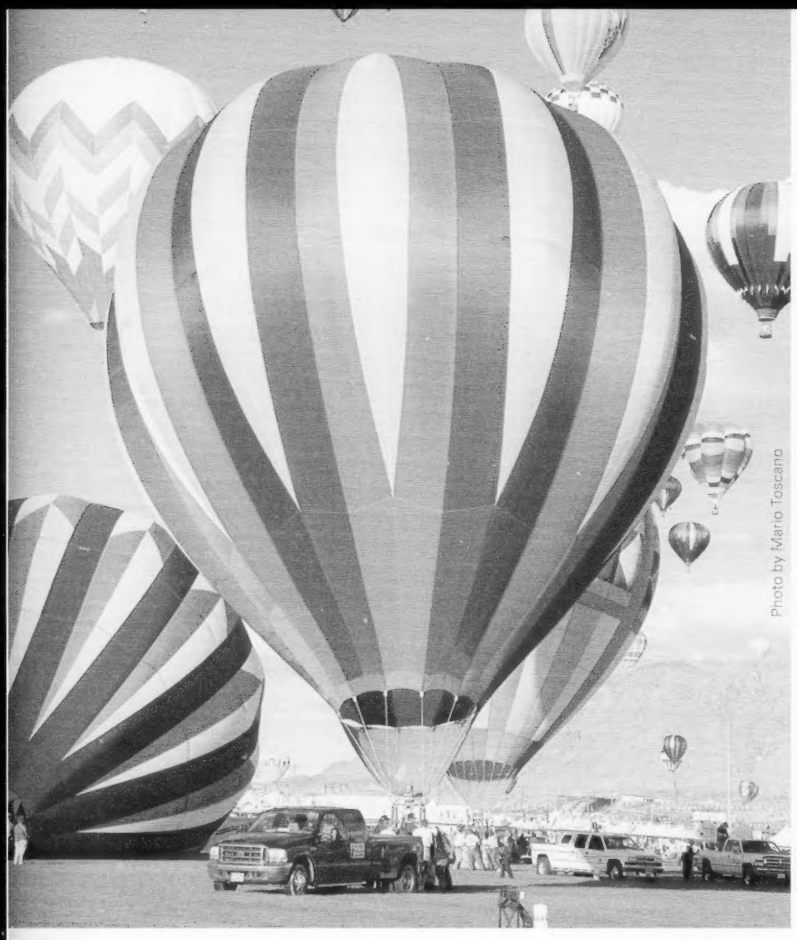


Photo by Mario Toscano

Last, but certainly not least, is the *FAA Safety Team*, or *FAASTeam Branch* (AFS-850). The FAASTeam is the FAA's most visible tool for safety promotion. The people who staff AFS-850 set the policy and manage the direction and operation of FAASTeam personnel around the country. While your local FAASTeam program manager (FPM) is directly involved in working with pilots at a personal level, AFS-850 exists to provide that FPM with guidance and support. In addition, AFS-850 oversees www.FAASafety.gov, the WINGS Pilot Proficiency program, and development of various safety training materials.

To summarize, here's an easy way to think about how AFS-800 is arranged and what it means to you. First is initial certification and "general training" (AFS-810). Next is flying for compensation or hire in any area except air carrier or air taxi (AFS-820). Third is the very specialized flying that you may or may not get paid to do (AFS-830). There was an AFS-840 branch in previous organizations of AFS-800 so the designation was omitted to prevent internal confusion.

Hand in Hand

By now you can see that the work of AFS-800 significantly affects your life as a pilot. Another division with a significant and related impact is the Regulatory Support Division (AFS-600). As its formal name implies, AFS-600 supports the regulatory activities and responsibilities assigned to other Flight Standards Service divisions. One key support function is assigned to AFS-605, the *Delegation Management Program*. AFS-605 manages and oversees all Flight Standards designee programs. While policy is directed from AFS-800, the actual implementation is accomplished in AFS-605. Another key office is the *Light Sport Aviation Branch*, AFS-610, which acts as a national field office for issues regarding light sport aviation.

AFS-630, the *Airman Testing Standards Branch*, has a core mission whose function is very well known to most pilots. AFS-630 is responsible for producing and maintaining the practical test standards (PTS), the aeronautical knowledge tests, and a wide range of guidance materials (e.g., the FAA-H series handbooks and the CT-8080 series testing supplements). As we have been reporting in this magazine (see page 15), AFS-600, along with AFS-800 and several other AFS policy divisions, is currently engaged in a major government/industry effort to overhaul the knowledge testing process. Stay tuned for additional developments in this crucial area.

AFS-600 also includes several branches that don't directly deal with the public. These include the *Aviation Data Systems Branch* (AFS-620), the *Designee Standardization Branch* (AFS-640), and the *Designee Quality Assurance Branch* (AFS-650). AFS-620 is responsible for many of the systems that allow the FAA's inspector workforce to do their jobs and for maintaining the Service Difficulty Report System. As you might have guessed from their names, the AFS-640 and AFS-650 branches work hand in hand to create training and standards for FAA's designees and then measure how well the designees meet those standards.

James Williams is FAA Safety Briefing*'s assistant editor and photo editor. He is also a pilot and ground instructor.*

Learn More

Every organization has a structure. In the military, that structure is recorded in a document known as the Order of Battle. The Order of Battle lists all of the units in a particular operation and describes their strength, and disposition. For the FAA Flight Standards Service a document called Order AFS 1100.1C (available at http://go.usa.gov/DVkm) serves a similar purpose. The 1100.1C Order lists every division in Flight Standards, enumerates the branches that make up each division, and describes the responsibilities and functions of each branch.

SUSAN PARSON

Airman Testing Reform Update

In September, the industry-led Airman Testing Standards and Training Working Group submitted its report and recommendations for improving the FAA's airman certification system to the FAA through the Aviation Rulemaking Advisory Committee (also industry-led). The entire report will be available mid-November for review on the FAA website. For a quick overview, though, you can read just the executive summary, the conclusion, and the recommendations. You might also want to check out the "frequently asked questions" document in one of the appendices to the group's report. Here are a few highlights from the FAQs:

What is the Airman Certification Standards (ACS) project all about?

The goal of this project is to improve airman training and testing by implementing an integrated, holistic system that clearly aligns testing with certification standards and guidance.

Who are these people? What expertise do they have?

The Airman Testing Standards and Training Working Group (ATST WG) includes aviation professionals who collectively represent all major sectors of the industry. These include flight instructors, designated pilot examiners, the aviation academic community, industry advocacy associations, and training and test preparation providers involved with aviation training and testing in 14 CFR part 61, 141, 147, and 121 environments. To help ensure that the FAA has a full understanding of the ATST WG's work and the rationale for its recommendations, the FAA also assigned subject matter experts from a number of its policy divisions to attend meetings.

What is the problem you're trying to solve? What's wrong with the tests we have now?

FAA knowledge testing matters because it is intended to measure an applicant's understanding of the rules, regulations, and knowledge areas required to receive an FAA airman certificate.

For the flight proficiency (skills) part of the airman certification process, the FAA developed the Practical Test Standards (PTS) to define acceptable performance of the required skills. There is currently no such guidance for the knowledge test, which creates problems familiar to anyone who has ever taken an FAA knowledge test. These include questions that are overly broad, trivial, outdated, and sometimes irrelevant. Test questions that require multiple interpolations to calculate takeoff, landing, and density altitude to the foot imply a level of precision that, ironically, is grossly inaccurate in terms of safety and reality.

Moreover, the knowledge exam is not a reflection of a typical ground training program. Consequently, applicants who have demonstrated knowledge and mastery in an approved flight and ground school curriculum must still conduct a comprehensive "test prep" to pass the knowledge test. As a result, the knowledge exam is disconnected from both training and the practical test. For these reasons, many regard the knowledge test as a rote memorization exercise that has no real value for aviation safety education and training.

If there are problems with the knowledge test, why can't you just fix those and leave the rest alone?

In September 2011, the FAA convened a group of industry experts to recommend ways to "fix testing." This group — the Airman Testing Standards and Training Aviation Rulemaking Committee (ARC) — quickly determined that there is no way to fix the knowledge test in a meaningful and sustainable way without having a knowledge test standard akin to the PTS.

The ARC concluded that aviation safety and stakeholder needs, including the core desire for a more relevant FAA knowledge test, would be best served by integrating task-specific aeronautical knowledge into the appropriate Area of Operation in the existing PTS, and by adding task-appropriate risk management elements for each Area of Operation. The ACS would thus define not only the performance metrics for knowledge and skill, but also the required content for guidance materials such as the FAA-H-series handbooks and for relevant knowledge test questions.

How does the ACS approach improve the PTS?

The ACS approach does not increase or expand any of the skill evaluation requirements in the existing PTS, but it significantly improves the PTS in several ways. The ACS:

- *Provides integrated guidance that defines performance metrics for aeronautical knowledge as well as flight proficiency (skill).*
- *Strengthens the PTS by explicitly defining the aeronautical knowledge needed to support each Area of Operation/task. This linkage enhances the relevance of the testing/training process for adult learners by clearly answering the "why do I need to know that?!" question.*
- *Enhances safety by using the risk management section in each ACS Area of Operation to translate abstract terms like "aeronautical decision-making" into specific safety behaviors relevant to each task.*
- *Eliminates "bloat" by consolidating duplicative or overlapping tasks in the existing PTS.*

Why does the ACS have a separate section for risk management? Isn't that just the latest buzz word?

The PTS already requires evaluation of the applicant's risk management abilities, but the existing document doesn't offer the kind of concrete "what do I have to do?" guidance that users need and deserve.

The rationale for including a risk management section in the ACS is to enhance safety by translating abstract terms into specific safety behaviors relevant to each task. The ACS is also intended to communicate and demonstrate that risk management is a continuous process that includes identification, assessment, and mitigation of task-specific hazards that create risk. The risk management element identifies the circumstantial issues that aviators must consider in association with a particular task.

How do you propose to provide the "clear link" connecting knowledge/skill performance standards, guidance, and test materials?

One of the overarching goals of this project is to create an integrated, coherent airman certification system in which standards, guidance, and testing can be aligned and maintained in alignment.

The proposed private pilot, authorized instructor, and instrument rating ACS documents include a series of letters and numbers after each task. These codes provide the means to correlate the tasks in the ACS with guidance and testing, and to keep them aligned going forward. The proposed coding system has five elements that are anchored in the ACS (not in reference documents, like the current LSCs). The proposed ACS codes would supersede the current system of "Learning Statement Codes" (LSC), which is too limited to serve as the mechanism for alignment and too complex to effectively serve the needs of the FAA and the stakeholder community.

Isn't the real problem related to deficient skills? If so, what is the point of this change?

According to the AOPA Air Safety Institute, the three leading general aviation (GA) fatal accident factors are maneuvering flight, continued VFR into instrument meteorological conditions (IMC), and loss of control on takeoff. These factors all imply some degree of deficiency in the pilot's knowledge, skill, and risk management abilities. Even the world's best stick-and-rudder pilot is at risk for loss of control if he or she has an inadvertent flight into IMC because of deficiencies in weather knowledge or risk management ability. Safety is not served by emphasizing just one of these three abilities. On the contrary, each supports the others.

The ACS is therefore an improvement over the current system, because it offers a holistic approach to aviation training and testing — it integrates knowledge, skills, and risk management, and it provides a way to ensure that the elements of the certification process — standards, guidance, and testing — are correlated to these abilities and aligned with each other.

Doesn't this kind of change require a formal rulemaking process?

No. Like the PTS, the ACS simply defines the metrics — the standards — for meeting the regulatory requirements that 14 CFR part 61 enumerates for aeronautical knowledge and flight proficiency. The ACS does not change any of the requirements in 14 CFR.

Doesn't this approach increase the standards?

No. The ACS approach does not increase the standards. Except for those areas where the ACS consolidates overlapping or duplicative Areas of Operation/tasks in the existing PTS, none of the PTS material has changed. The knowledge and risk management sections simply define the standards for meeting the requirements in 14 CFR part 61.

Won't the ACS approach dramatically increase the length (and expense) of the practical test?

No. In fact, a more integrated and efficient presentation of the material to be tested could even shorten the test, especially if the evaluator has more confidence in the quality and meaning of the applicant's knowledge test score. Evaluators will be able to effectively and efficiently re-test any deficient knowledge identified on the airman knowledge test report to ensure the applicant has been trained to proficiency in all areas.

How will use of the ACS approach change airman training?

With clearly defined standards for knowledge, skill, and risk management, airman training can be conducted more effectively to ensure applicants who complete flight and ground training are safe, competent aviators as well as successful in passing the FAA knowledge test. Training and testing will be aligned, which means that "test prep" will be a review of the ground school curriculum rather than a separate, unrelated step to learn questions for the sole purpose of passing a test.

JAMES WILLIAMS

Making the Paper Work

A Look Inside FAA's File Cabinet

One of the oldest clichés in aviation is the joke that an aircraft is not legal to fly until the weight of the paperwork equals or exceeds the weight of the aircraft. As with most jokes, there is a grain of truth in this one. Aviation is a paperwork intensive business for everyone involved. But paperwork — more precisely, *correct* paperwork — is essential, and that starts with the FAA's documentation of your status as a certificated/rated aviator and, if you purchase an aircraft, your ownership of the bird.

At the FAA, documenting and storing airman and aircraft records is the task of the FAA's Civil Aviation Registry, which is organizationally structured as the "AFS-700" division of the FAA Flight Standards Service. For simplicity's sake, we will look at the two major parts of AFS-700: the Airman Certification Branch (AFS-760), and the Aircraft Registration Branch (AFS-750).

Safeguarding Your Certificates

The Airman Certification Branch, AFS-760, is responsible for handling all registry functions related to airmen. When you take the practical test for an airman certificate or rating, the evaluator who conducted your test sends the paperwork to AFS-760. After checking to ensure that it is complete and correct, AFS-760 issues your permanent airman certificates.

AFS-760 takes the "complete and correct" part very seriously, so be careful to review all documents for accuracy before they are submitted to the Airman Certification Branch. If you are anxious to know how soon your permanent certificate will arrive, AFS-760's homepage on the FAA website displays information about the date of temporary certificates they are currently processing (http://go.usa.gov/Wb84). Once your documents are on file, AFS-760 will handle other issues such as a request for an address or name change.

One of the most important functions of AFS-760 is to serve as the repository for all airman records. You can request a copy of your own file by filling out a simple form at http://go.usa.gov/DmeT. In addition, this office manages a database that allows you to search the registry in order to verify yours or someone else's certificates.

Documenting the Aircraft

The Aircraft Registration Branch, AFS-750, handles all of the paperwork pertaining to your aircraft. This is where you apply for the registration certificate, which you need in order to obtain an airworthiness certificate. The Aircraft Registration Branch is also where you apply for a tail number/N number. The registry's web site is: http://go.usa.gov/Wbkx.

Another important function of the Aircraft Registry — especially for prospective aircraft buyers — is that it acts as a repository for important information about your aircraft. This information includes ownership and liens and, once a Manufacturing Inspection District Office or designee issues an original airworthiness certificate, AFS-750 becomes the recorder of airworthiness information.

AFS-750 also operates a national indices system for aircraft, engines, and propellers. A single repository for this kind of information is especially useful in a transaction that could easily top the value of many homes.

In a safety-critical industry, there is a clear need to ensure that certificates and documents for airmen and aircraft are properly recorded and maintained. Ready access to such information is also important, so that owners and operators can make informed decisions. The goal of the Civil Aviation Registry isn't just to turn out paperwork, but to make the paper work for you.

James Williams is FAA Safety Briefing's *assistant editor and photo editor. He is also a pilot and ground instructor.*

Learn More

FAA Airmen Certification Homepage
http://www.faa.gov/licenses_certificates/airmen_certification/

FAA Civil Aviation Registry Homepage
http://www.faa.gov/about/office_org/headquarters_offices/avs/offices/afs/afs700/

From Aeronca to Zenair:

The Basics of Buying a Bird

SABRINA WOODS

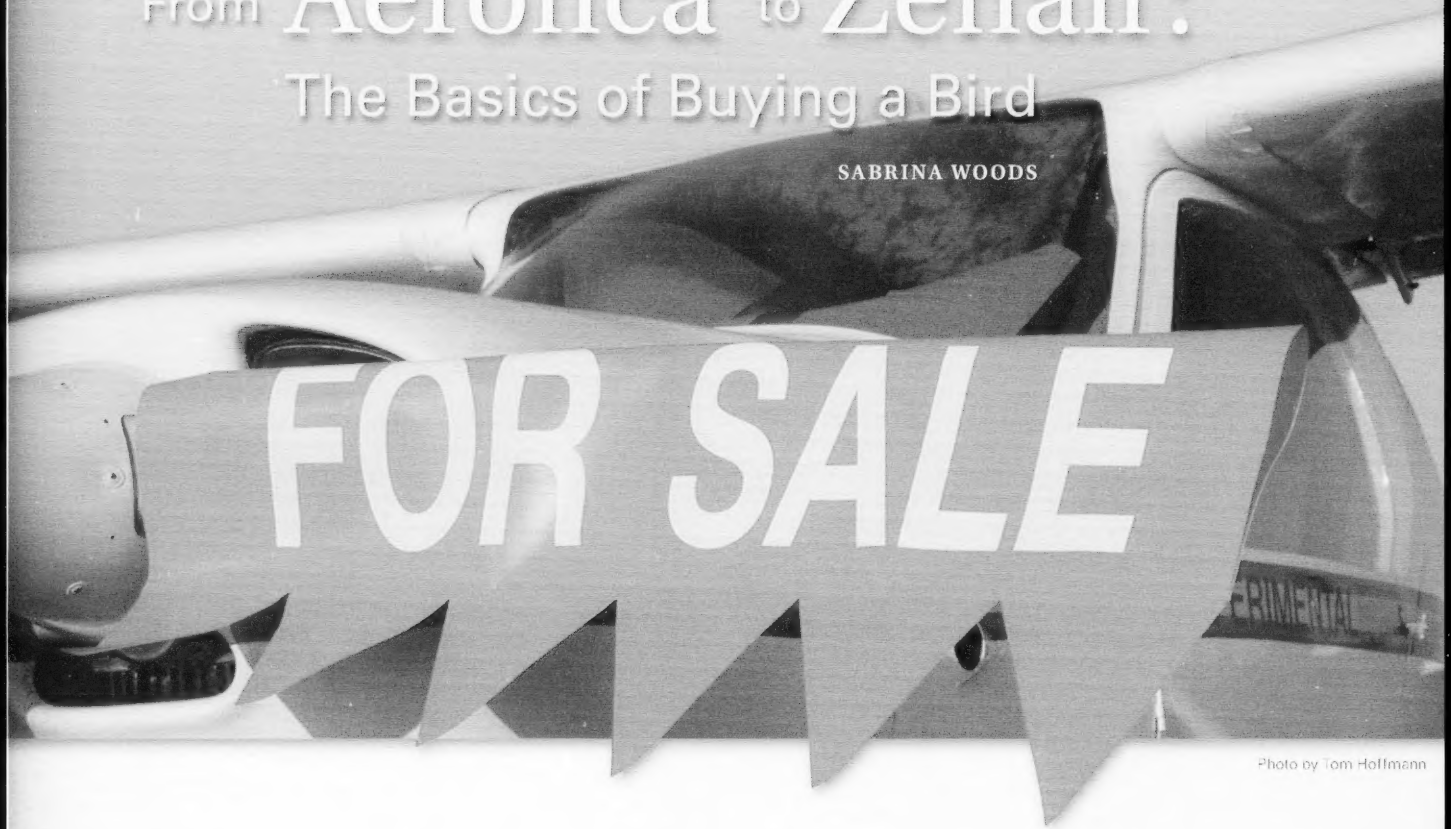


Photo by Tom Hoffmann

The time has come! You have enjoyed the benefits of a private pilot certificate for several years and, after diligently saving funds, you want to take that next big step. You are ready to purchase your very own plane.

But how on earth do you get started? Is there a *Planes-R-Us* or *JetSmart*? And once you have acquired your new pride and joy, what does it take to keep it airworthy? A little WD-40 and some speed tape? These are all excellent questions, so I decided to take some time out to chat with a few FAA folks and get some answers on buying an aircraft, keeping it "street" legal, and most importantly, keeping it safe for flight.

Alphabet Soup

To help crack the code on acquiring a new aircraft, I sought the insight of the FAA Flight Standards Service's Aircraft Maintenance Division and the Aircraft Registration Branch under the Civil Aviation Registry. To make it easier I will refer to these two agencies as AFS-300 and AFS-750, respectively.

Like most divisions under Flight Standards, these two are staffed by a mix of regulators, program analysts, legal instruments examiners, and safety inspectors, in addition to airframe and powerplant certificated technicians. In brief, AFS-300 is headquartered in Washington, D.C., and is responsible for the regulations and national policies governing the certification, inspection, and maintenance aspects of aviation, to include maintenance airmen. AFS-750 is located at the Mike Monroney Aeronautical Center in Oklahoma City, Oklahoma, and is responsible for national aircraft registrations, the recording of conveyances and security interests against U.S. civil aircraft, and the identification system used for registered aircraft.

Bargain Beechcraft

Now back to that airplane purchase. It is a huge investment — tantamount in cost to the purchase of a new home, or the birth of triplets — and that is just for pre-owned! Presuming you are going to go the "used" route and you've made a decision about the make and model of the aircraft you would like, the next step is picking a place from which to purchase.

While "Bob's Bargain Basement Beechcraft" might sound like a great place to get a good deal,

you should probably ask around your local FBO, check out aviation trade magazines, and read over bluebook values first, so you know what to expect when purchasing. Some initial things to consider that affect the value of the aircraft are engine time and specifics, equipped gadgets, completed airworthiness directives (ADs), damage history, and, of course, the aesthetics of the aircraft. That last part is two-fold: not only do you want the aircraft to look good, you will also want to make sure that a new paint job doesn't hide an underlying corrosion issue. For a "carfax" style report, AFS-750 can produce aircraft records with the click of a link. Go to http://aircraft.faa.gov/e.gov/ND/, and fill in the aircraft N-number and serial number and for a small fee, you can receive all sorts of pertinent data in either CD or paper format.

Once you have your heart set on a bird, the next step is to establish its airworthiness. That means both its legal status and its ability to stay aloft (safe for flight). To start, the seller of the aircraft should be able to present the maintenance logs, the flight manual, and either an airworthiness certificate FAA Form 8100-2 (standard), or a Form 8130-7 (special). It is in your best interest that the aircraft already has its certificates and data plates when you are ready to purchase. Reproducing these credentials can be a lengthy and costly endeavor. To learn more about the ins and outs of airworthiness certificates check out http://go.usa.gov/DnbJ.

In addition to these documents, it would be prudent to conduct your own title check on the aircraft to determine the status of any existing liens. The last thing you want is to be ready to close the deal and find out that there is a hold up with a financing agency. Ultimately, you are also legally responsible for knowing what is on file with the FAA, even if you don't. Several aviation advocacy groups such as the Aircraft Owners and Pilots Association (AOPA) and the Experimental Aircraft Association (EAA) have departments that specialize in aircraft purchasing and fact checking, and can be a big help to you.

Kick the Tires and Check the Wires

Once you have the paperwork, the next step is to get your future investment inspected by a FAA certificated mechanic — preferably one familiar with the aircraft — in a pre-purchase inspection. This step can save you a whole lot of grief and money later, as it should help to weed out some of the bigger discrepancies that could exist on the aircraft. In addition, 14 CFR part 91 places primary responsibility upon the

owner (or future owner) for maintaining the aircraft in an airworthy condition. So you will want to make sure you don't have your heart set on a lemon.

Different mechanics have different approaches as to how they like to conduct pre-purchase inspections — everything from a brief look to a full teardown of the engine — so it is a good idea to sit down beforehand and ensure you both are on the same page. Together, you should check out the maintenance logs, placards, equipment lists, and active ADs and safety bulletins to help determine the condition of the craft.

In addition to saving you from potential financial heartache, or worse, a safety incident, a good once-over can also help identify the smaller, more manageable issues with the aircraft that you can then get addressed. In fact, when it is all said and done, and you do decide to buy the aircraft, it would serve you well to end the whole process with a newly accomplished annual so you can start fresh and know where you stand mechanically.

Signed, Sealed, Delivered – It's Yours!

Once you have determined the aircraft is safe for flight and you have negotiated a bill of sale, the next step is to file a whole lot of paperwork. This part can seem a bit tedious but you have to realize that filing ownership and lien documents essentially announces to the world that this aircraft is *yours*.

When you think of it that way it makes the process a bit more palatable, right?

First up is that bill of sale or Form AC 8050-2. This document should be recorded with AFS-750 to protect your interests as the new owner. The next step is to register the aircraft in your name on Form AC 8050-1. Links to all of these forms and more can be found at http://go.usa.gov/DC7R. In addition to the national registry, most states will require you to register your aircraft through them, so you want to ensure that you have met those requirements as well.

Next is that airworthiness certificate. Hopefully you already have it but if for some reason you don't, your local flight standards district office (FSDO) can process an application for a replacement certificate. Only an authorized representative of the FAA can issue an airworthiness certificate and in order for the agency to do so, you must first provide proof of registration. Last should be a copy of the lien (if there is one) against the aircraft. While the FAA does not require filing lien or security interests, it is a good idea to provide as much verifiable proof as possible that the aircraft belongs to you.

The "Others"

Now please don't think I have left out the brand new, fresh-off-the-assembly-line airplane seekers. There is a big thrill in knowing that you are the first ever (save for the production test-pilot) to fly an aircraft and for you, the process doesn't change much. The biggest exceptions are that you can very likely forgo the pre-purchase inspection and the title will be a first-issue. It is also highly unlikely there will be missing paperwork problems since these will also be newly issued.

Purchasing a light-sport, amateur-built, or former military aircraft has its quirks as well. For light-sport, you will need to ensure your aircraft has been certificated as a special or an experimental light-sport craft under 14 CFR section 21.190 and section 21.191, respectively. In addition to the usual paperwork requirements, you must also provide a Light-Sport Aircraft Manufacturer's Affidavit, Form AC 8050-88A (http://go.usa.gov/DgEQ).

Amateur-built aircraft require a more robust pre-purchase inspection as the mechanic must take into account workmanship, structural integrity, and parts verification in addition to the usual procedures. Amateur-built aircraft also require a condition inspection to be accomplished within 12 months prior to flight. To learn more about amateur-built policies and regulations, check out http://go.usa.gov/DgdY.

Former military aircraft require quite a bit of extra attention, and purchasing one is not for the impatient. Just one of the many additional steps to purchasing an old warbird includes returning the aircraft to its originally approved civil configuration, if previously modified. Your best bet for grasping all of the nuances of this particular class of aircraft would be to read up at http://go.usa.gov/DgvV.

Zen, and the Art of Flying

Now that monies have exchanged hands and papers have been filed, you should be good to go. Some other things to consider as a new aircraft owner is that there are a host of annual, time-compliance, and emergency-action inspections that will be required over the lifespan of your bird. This is definitely the time to get in tight with your mechanic as he or she can help you track these requirements as they come up.

Your last prudent measure is insuring your investment (compulsory in several states and often by lenders). Airplane insurance has many different options for purchase to include: passenger liability, third party liability, ground risk hull (in motion and stationary), and in-flight. A word to the wise — shop for your insurance company with just as much scrutiny as you would shop for your aircraft. Not all policies are alike and the differences can be significant should the worse occur and your baby sustains damage.

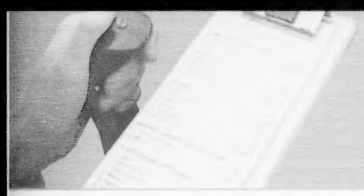
Finally, after all of this hard work, you are ready to rack up the hours in the pursuit of flying Zen — safe and secure in the knowledge that you have purchased a sound, dependable, and street legal bird. As the longtime historian for Britain's Royal Air Force, Sir Walter Alexander Raleigh (1861-1922) once said, "the engine is the heart of an aeroplane, but the pilot is its soul." Happy flying.

Sabrina Woods is an assistant editor for FAA Safety Briefing. *She spent 12 years in the active duty Air Force where she served as an aircraft maintenance officer and an aviation mishap investigator.*

Learn More

For an excellent handbook on purchasing a new aircraft, check out *Plane Sense* at http://go.usa.gov/Dg7e.

It includes sample checklists, regulation references, and contact information for AFS-300, AFS-750, Light-Sport Registry, and more!



SUSAN PARSON

Stocking Your Safety Toolbox

The FAA website includes this simple statement:

> *What drives us — through everything we do — is our mission to provide the safest, most efficient aerospace system in the world. We continually strive to improve the safety and efficiency of flight in this country.*

Since safety is the FAA's top priority, it makes sense that safety education and safety promotion should be on the list of FAA safety-enhancing tasks. Although everyone in the FAA Flight Standards Service does some form of safety education/promotion work, the focus of this effort is concentrated in the FAA Safety Team, or, FAASTeam. The official FAASTeam mission statement is:

> *To improve the nation's aviation safety record by conveying safety principles and practices through training, outreach, and education ... (to) establish meaningful aviation industry alliances and encourage continual growth of a positive safety culture within the aviation community.*

The FAASTeam — once known as the Aviation Safety Program — is structured around a few key concepts. One is the idea that preventing accidents requires a customized approach. At the heart of its structure are a series of FAASTeam Program Managers (FPMs) who work at Flight Standards District Offices.

One Size Does Not Fit All

To ensure that the safety education message is specific to their area, each FPM will develop a unique outreach strategy based on a central performance plan and from information gathered from the front lines, including:

- accident/incident reports involving airmen from the area
- hazards identified by FAA inspectors at local Flight Standards District Offices
- information from the local aviation community

The next step is for the FAASTeam to develop specific programs and materials designed to mitigate risk and reduce fatal accidents. The beauty of this data-driven approach is that pilots in places like Florida don't have to listen to presentations on icing, and airmen who operate around flat terrain need not spend time with mountain flying techniques or density altitude. The folks who do need these tips get tailored and focused information, and it comes from people who understand their operating environment.

It Takes a Team

Another FAASTeam concept is that it really is a team — FAA employees along with individual airmen and organizations that represent multiple segments of the highly diverse aviation community. Those truly on the front lines of the battle for GA safety are FAASTeam Representatives — aviation safety volunteers who work closely with FPMs to provide safety information and education in their communities. The FAASTeam provides training for those who want to serve as FAASTeam Representatives, and it also supports their efforts with materials and equipment.

By the way, those materials often include copies of this publication, which is another component of the FAA Flight Standards Service's overall safety education and promotion effort. FPMs can request copies of *FAA Safety Briefing* to support a wide range of activities — anything from a safety seminar offered by an individual community FAASTeam representative, to seminars given at large aviation events like Sun 'n Fun and EAA AirVenture.

The team also includes you. FAASTeam membership is open to anyone who makes the effort to promote aviation safety and become part of the positive shift in safety culture. To become a member, all you need to do is:

- Sign up at FAASafety.gov and use the wide range of resources it offers.
- Participate in structured programs, such as the WINGS – Pilot Proficiency Program for pilots and the automated AMT Awards program for mechanics.
- Attend live FAASTeam seminars in your area.

If you haven't visited www.FAASafety.gov lately, make it a point to take a fresh look next time you're on the Internet. This site offers a wide and still-growing range of courses, sources, and resources to enhance aviation safety education — we can never learn too much.

Susan Parson (susan.parson@faa.gov, or @aviBrix for Twitter fans) is editor of FAA Safety Briefing. She is an active general aviation pilot and flight instructor.

Ladies and Gentlemen: Allow Me to Demonstrate the Safety Features of the Air Transportation Division

TOM HOFFMANN

By now you've probably read elsewhere in this issue about the different ways FAA's Flight Standards Service is involved with a topic near and dear to many of you — general aviation safety. However, Flight Standards' purview goes well beyond protecting GA. They're also responsible for the regulations and policies that govern "heavy metal," or air carrier operations and certification. This includes commuter and on-demand operations as well as training centers for air carrier crewmembers.

So, if you're pondering an airline career, or maybe just curious about all of the intricate safety orchestration taking place on your next commercial flight, then buckle up for a detailed look at the part of the FAA that sets standards for commercial flight safety: the Air Transportation Division.

Welcome Onboard!

Comprising over 100 employees, the Air Transportation Division (known as AFS-200 in FAA lingo) is among the largest divisions within Flight Standards. Division employees are split across nine different branches, most of which are based at FAA's Washington, D.C., headquarters. AFS-200 also interfaces with and supports FAA's vast network of field offices including Flight Standards District Offices (FSDOs), that focus on GA, and Certificate Management Offices or Teams (CMOs/CMTs), that specialize in the certification, surveillance, and inspection of a specific major air carrier.

As a GA pilot, your interactions with the FAA are normally influenced by policy decisions made by Flight Standards' General Aviation, Regulatory Support, or Aircraft Registry divisions. But should you decide on an airline career, it's the Air Transportation Division that will determine the type of experience, training, and knowledge you'll need to advance in the air carrier world.

You can see a recent example of this influence with the first officer qualification and Airline Transport Pilot (ATP) certificate changes that were introduced in a rule change last July. The new rule boosts pilot qualification standards by requiring first officers to hold an ATP certificate and an aircraft type rating for the aircraft flown. It also modifies the requirements to be eligible for an ATP multiengine airplane certificate. This rule change demonstrates the successful working relationship AFS-200 has with other divisions. In this case, the General Aviation and Commercial Division was instrumental in supplying information on pilot certification issues during the rulemaking process.

"We work very closely with the folks at the General Aviation and Commercial Division, especially when it comes to pilot training and certification

issues," says Robert Burke, manager of AFS-200's Air Carrier Training Systems and Voluntary Safety Programs Branch. Given its overlap with many GA policies and its involvement in the airman training arena, the Training Systems Branch may also be of interest to those considering the jump from a Beech to a Boeing. And that goes for more than just pilots.

"In addition to handling all the training policy for air carrier pilots, we also cover flight engineers, flight navigators, dispatchers, flight attendants, and any training programs approved under part 142," says Burke.

That's quite a tall order when you consider the various types and sizes of air carrier operations, the various sizes of aircraft used (Cessna Caravans to Boeing 747s), and all the different methods of training that are employed throughout the industry.

Please Fasten Your Seatbelt

Despite having the largest and busiest airspace system in the world, the United States continues to lead the pack among nations when it comes to commercial aviation safety. That's largely due to the FAA's unwavering focus on continued operational safety and through the many efforts of AFS-200 and supporting divisions. But that success doesn't come without its challenges.

One issue that has plagued the industry in recent years and which seems to be on the minds of safety experts worldwide is an overreliance on cockpit automation. This technology tunnel-vision seems to go hand-in-hand with yet another perceived pilot problem, a degradation of stick-and-rudder skills. To address this issue, AFS-200 plans to roll out a new rule this fall that will emphasize training requirements for full stall recovery, upset recovery, and pilot monitoring skills.

"With the new rule, air carrier pilots will be required to regularly demonstrate proficiency of hand flying skills in targeted emergency situations and maneuvers," says Burke. "There will also be new operational requirements for pilots to 'monitor' during a flight as well as demonstrate these monitoring skills during training."

The new training requirements should also be able to help pilots with the industry's transition towards the full integration of NextGen, FAA's satellite-based navigation system. "We've been used to flying in pretty large tubes of airspace until now," says Burke. "With NextGen, we're flying in a much tighter space and requiring pilots to be even more reliant on technology."

Burke looks forward to the change, but considers the transition to be a bit of an enigma from a pilot training perspective. "On one hand we have to consider the technical skill sets needed to operate and monitor automated systems, while on the other, we need to understand how to keep pilots motivated and engaged during a flight."

Compliance with FAA's upcoming rule that increases flight crew minimum rest periods will likely play a role in helping to combat some of the human factors challenges that automation and the NextGen transition may present.

Your Closest Exit May Be Behind You

As mentioned earlier, AFS-200 is responsible for the regulations and policy for a variety of other air transportation issues beyond pilot training, including many of the more routine things you might see or hear on a commercial flight. Flight attendant training is a good example. This training includes everything from the inflight safety demonstration at the beginning of a flight, to how flight attendants prepare the cabin for landing, to how to successfully evacuate an entire aircraft after an accident or incident.

The FAA also approves these evacuation procedures to ensure that in the event of an emergency, passengers can disembark safely and efficiently. The FAA tests the effectiveness of these procedures by requiring air carriers who have introduced a new type and model of airplane to their fleet to perform an evacuation demonstration as well as a ditching demonstration if extended overwater operation parameters are met. During a full evacuation demonstration,

flight attendants are required to safely evacuate all passengers in the dark, with pillows, blankets and carry-ons strewn about the aisles, and with only half of the exits available for use. They have a mere 90 seconds — about the time it takes to microwave a bag of popcorn — to complete the evacuation.

A proving run is another method the FAA utilizes to verify an air carrier's ability to operate a new aircraft, or conduct a particular type of operation. This exercise requires carriers to fly under the oversight of FAA safety inspectors while running through a series of simulated emergency and non-normal scenarios, like a medical emergency or an engine failure.

"The idea with these exercises is to make sure they're ready for the unexpected," says Burke. "It's a litmus test to see how well their procedures work."

An area that is perhaps less obvious to the flying public, but no less important to safety, is aircraft dispatcher procedures. Dispatchers are FAA-certificated personnel who help plan and monitor a flight from the early preparation stages until safely parked at its destination. Although remotely sited, they are involved with everything from load manifests and maintenance issues, to communicating with the flight crew on pop-up issues like airport closures or deviations caused by volcanic ash. AFS-200 provides the policy for the CMO/CMTs to use to ensure the systems and procedures in use provide adequate safety and reliability.

We Hope You Enjoyed Your Flight ...

As you can see, the Air Transportation Division is an important player in the FAA's and Flight Standards' safety network. And we haven't even covered all that they do! AFS-200 also handles the qualification of flight simulators, approves extended range twin operations (ETOPS), and provides guidance for helicopter air ambulance operations. (You can find a complete list of division functions in chapter seven of Flight Standards Organizational Handbook, Order 1100.1C)

So the next time your flight path crosses over to the air carrier world, whether as an airline passenger or an employed participant, know that there is a team of professionals dedicated to keeping you safe and maintaining the high standards of our nation's vast air transportation system.

Tom Hoffmann is the managing editor of the FAA Safety Briefing. *He is a commercial pilot and holds an A&P certificate*

Learn More

Flight Standards Organizational Handbook
http://go.usa.gov/DKDT

GA SAFETY ON THE GO

Dowload the e-Reader File

faa.gov/news/safety_briefing

TOM HOFFMANN

It's 4 p.m. on a crisp fall day in southern New Hampshire. The sun, still brightly beaming over the horizon, compels you to squint as you carefully tie down and secure your Cherokee 180 after a relaxing leaf-peeping jaunt. Then, through the glare of the sun, you notice a tall figure with dark shades slowly approaching your aircraft. Your heart instinctively skips a beat as you notice a blue polo shirt with a familiar-looking green and yellow "meatball" logo on the shoulder. Yikes, it's the dreaded FAA ramp check! Quick, what do you do?

a. Jump in your plane and make a quick getaway
b. Click your heels and shout "there's no place like home," or
c. Cross your fingers and quietly say your prayers

Well, the correct answer is actually "D," none of the above ... but more on that later.

Now, an FAA ramp check might seem a bit unnerving to most, but it's really just a routine procedure — dutifully carried out by aviation safety inspectors (ASIs) — that is meant to enhance safety for you and your fellow airmen. And although the ramp check might be one of the more recognizable (and admittedly least popular) tasks in the flying public's mind when it comes to ASIs, it's actually only one of myriad tasks they are responsible for.

What's in a Name?

To understand more about what an ASI is and does, let's start by explaining the position's baseline responsibilities. As the name implies, aviation safety is of course paramount to an ASI. Working in the field and alongside aviation stakeholders in various capacities, ASIs often represent the front line of safety for the FAA. These highly skilled men and women apply their knowledge of the aviation industry together with the laws and policies that govern aviation to make our National Airspace System the safest and most efficient in the world. And while a few might think ASIs are crudely assembled out of red tape and recycled rulebooks, they actually have the same background as many of you, their fellow aviators, along with a similar passion for the well-being of the GA community.

A Wearer of Many Hats

Numbering over 3,000, ASIs are among the largest workforce groups at the FAA. They are spread out among eight regional offices and more than 100 field offices including Flight Standards District Offices (FSDOs) primarily, but also Certificate Management Offices (CMOs), International Field Offices (IFOs), the Aircraft Evaluation Groups (AEGs), the eight regional headquarters offices, and the FAA's national headquarters office in Washington, D.C.

ASIs are assigned to oversee one of two main areas — air carrier or general aviation — and then fall into one of three sub-categories: operations, maintenance, or avionics. Due to job function similarities, the latter two are collectively referred to as airworthiness inspectors.

Although we'll be focusing more on the GA side of inspector duties here, ASI responsibilities can still vary greatly among the different disciplines. Broadly speaking, however, most ASIs engage in the following activities:

- examining airmen for initial certification and continuing competence;
- evaluating airmen training programs, equipment, and facilities; and

- evaluating the operational/maintenance aspects of programs of air carriers and similar commercial and aviation operations to ensure overall safe operation.

"For a GA operations inspector, there are around 240 tasks that are required of you," says Joseph Morra, ASI with the General Aviation and Commercial Division's Operations Branch at FAA Headquarters in Washington, D.C. Reflecting on his time as an ASI with the Teterboro FSDO, Morra recalls focusing on everything from administering CFI checkrides, to assisting with the certification of new part 135 on-demand air carriers.

"Even though we're trained to handle most aviation safety-related scenarios, the types of activities required of an ASI are usually driven by the complexity of operations as well as the geographic nuances of a particular area," says Morra. As an example, fair-weather places like Florida or Arizona often have an abundance of flight training facilities, requiring ASIs to be more familiar with flight school surveillance and curriculum oversight. Or, you could have a busy metropolitan area, like Chicago, with complex airspace issues and a fair share of presidential temporary flight restrictions (TFRs), both of which require ASIs to be well-versed in handling pilot deviations.

Worthy of Recognition

Although their efforts are focused on safety related to aviation maintenance, airworthiness ASIs encounter many of the same issues inherent to an operations inspector's wide-ranging workload. "It can be challenging given the variety of operations and complexity that can exist with different operators," says GA Airworthiness ASI Robert Keenum, formerly based at the South Bend, Indiana, FSDO, and now at Flight Standards' Aircraft Maintenance Division in D.C. "You could be inspecting an individual AMT or IA (Inspection Authorization) one day, and a certificated large-scale corporate maintenance, repair, and overhaul shop the next. The key is learning how to develop a sound work program that accommodates the risk-management process which will identify and drive surveillance to areas with the most risk."

Photo by James Williams

Members of the Reno FSDO work with organizers of the Reno Air Races and the USAF Thunderbirds.

Safety is No Accident

Another key responsibility for any ASI — but one in which he or she certainly never wishes to have to perform — is incident and accident investigation. Normally an ASI will coordinate with the National Transportation Safety Board (NTSB) official assigned to an aircraft accident scene to help conduct the investigation. While both the NTSB and FAA work towards determining causal factors of an accident, ASIs focus primarily on nine specific areas, including the performance of any FAA facilities or functions, the competency of the airmen involved, aircraft airworthiness, and whether any regulations were violated.

With some general aviation accident cases, the NTSB may not be able to make it to the scene. In these cases, the on-site ASI must then coordinate and supply the accident information to the NTSB. That includes talking to the local authorities, taking photos, and obtaining statements from crewmembers and witnesses.

But Wait, There's More ...

In addition to the investigative and enforcement duties of many ASIs, there are also some assigned to more specialized roles, like those based at AEG, headquarters, and as FAASTeam Program Managers (FPM).

ASIs assigned to the FAA's Aircraft Evaluation Groups are involved with aspects of engineering activities and operating regulations for aircraft, engine, or propeller systems. AEG also helps to develop Airworthiness Directives and provides guidance for aging aircraft.

ASIs working at FAA's headquarters in D.C. work primarily to support the field offices by ensuring the regulations, guidance, and policy are properly suited to meet the aviation industry's evolving operational requirements. They also help work on safety recommendations, facilitate Congressional correspondence requests, and liaise with other FAA divisions/regions to provide support and technical guidance as needed.

Finally, there are ASIs that have been assigned to aviation safety outreach roles as FAASTeam Program Managers. FPMs work directly with the aviation

community as safety advocates. They host public seminars on aviation safety topics and accident mitigation strategies, as well as gather critical data on accident causal factors out in the field. FPMs also support field office ASIs in mitigating identified risk through education outreach.

The Enforcer?

That ominous term might stay better suited as a title for a "Dirty Harry" film than it is for an ASI. "Despite what preconceptions people might have, any sort of punitive enforcement measures are usually an absolute last resort for ASIs," says Jeffrey Smith, formerly an ASI at the South Florida FSDO and now Manager of the General Aviation and Commercial Division's Training and Certification branch. "Enforcement is an important part of an ASI's job, but by no means is it the sole focus. Our ultimate goal is ensuring compliance with the regulations."

If certain criteria are met and the safety risk is low, ASIs will typically turn to informal or alternative actions like counseling or remedial training. There are also administration enforcement actions ASIs can use for an airman that may have violated a rule, but which don't charge them with a violation. This type of action instead brings the incident to the attention of the person involved, documents any corrective action if needed, and encourages future compliance with the regulations. Two types of administrative action available include warning notices and letters of correction. Both of these actions also provide an important source of risk assessment data so ASIs can better focus their safety intervention and outreach strategies.

You might also be wondering what ASIs use as reference guide, whether for enforcement situations or for one of the hundreds of other tasks and responsibilities they have. It's all laid out in FAA Order 8900.1, volume 14 in particular, which is publically accessible at http://fsims.faa.gov.

On the Straight and ARROW

Getting back to the scenario posed at the start of this article; exactly what do you do if you get ramp checked? For starters, one of the most important things is making sure you have the proper documents with you. You wouldn't drive without having your driver's license, so be sure to have your pilot's license and medical with you. Your airplane needs documentation too, so make sure you follow the memory aid ARROW (Airworthiness and Registration certificates, Radio-telephone license when international, Operating limitations, and Weight and balance information). Also be aware of any specific airspace issues or NOTAMs (long term or pop-up) that could affect your flight, and be sure to get a proper weather briefing. Finally, if you are ramp-checked, don't be afraid to ask questions. Ask for proper ID if isn't initially presented. An ASI should always carry their FAA employee badge as well their ASI credentials, known as a 110A.

Photo by James Williams

It might also help to know that ASIs typically won't perform a ramp check with a pilot preparing to fly. It occurs more commonly well after a pilot lands and taxis in, and after any passengers are unloaded.

"ASIs do not have quotas for ramp checks that result in violations," says Morra. "We're not hiding behind clouds waiting to issue tickets. A lot of times what might be perceived as an enforcement action might actually be part of a proactive outreach effort, or simply an ASI wanting to introduce him/ herself to a new pilot."

As you can see, the role of an ASI is pretty varied and complex, but also frequently misunderstood. True, an ASI needs to have a steadfast approach towards safety oversight and regulatory compliance, but in a way that's respectful, courteous, and supportive of Flight Standards' mission to enable the adventure, commerce and service of aviation.

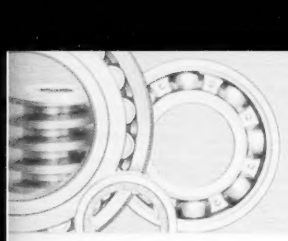
"We want you to succeed as an airman, but at same time, we need to hold the line for safety," says Smith. "We're just there to make sure pilot is doing what they should already be doing."

Tom Hoffmann is the managing editor of FAA Safety Briefing. *He is a commercial pilot and holds an A&P certificate.*

Learn More

FAA Order 8900.1
http://fsims.faa.gov/PICResults.aspx?mode=EBookContents

Flight Standards Service Organizational Handbook (FAA Order 1100.1C)
http://www.faa.gov/documentlibrary/media/order/fs%20 1100.1c.pdf



SABRINA WOODS

Just a Little Tweak Here and There ...

One of the great things about working in an environment of safety and aviation enthusiasts is that, invariably, every conversation will wind its way to the subject of flying or airplanes. Or, in my case — aviation maintenance. My colleagues love chatting about their respective (and prospective) aircraft, and someone is always pitching the latest in technology. Nothing is safe with these guys. From avionics and instruments to full engine modifications — they are always ready for the next big soup up. And by "soup up," I mean *more power* (cue simian-like grunts *here*).

For me, the affable banter often brings to mind the character Tim "the Toolman" Taylor, the star in the popular 1990s television show *Home Improvement*. His attempts at juicing up even the most mundane electrical appliances tended to end in spectacular fashion (disaster). It was very likely because, quite frankly, no one was helping him or monitoring his attempts at "upgrades."

Rest assured the guys I work with are consummate professionals and, although one or two of them might be known to dream big on occasion, when it does come time to get the work done, they rely on skilled, A&P certificated technicians or repair facilities. They assure the parts they use are procured from reputable manufacturing companies who adhere to FAA regulatory standards for airworthiness. In addition, other subject matter experts weigh in on what is about to be attempted. The way this happens is through the FAA Form 337 for Major Repair and Alterations.

This form is used for airframe, powerplant, propeller, and appliance major repairs and/or alterations. Say you want to switch your factory-installed piston-driven engine out for a turboprop. No small job, right? According to 14 CFR Part 43, Appendix A; "[a] conversion of an aircraft engine from one approved model to another ... ," and "changes to the engine by replacing aircraft engine structural parts with parts not supplied by the original manufacturer ... ," are major alterations and therefore require a Form 337.

That is a lot to take in. A good first step is to check out the job aid produced by the FAA's Aviation Maintenance Division. This handy document can be found here http://go.usa.gov/DT2G. It has a wealth of information that can guide you through the Form 337 process from start to finish. Next, you need to find a knowledgeable, FAA-approved mechanic and contact an aviation safety inspector (ASI) from your local FSDO, or a designated airworthiness representative (DAR) who can approve the work. To find a DAR near you, you can go here, http://av-info.faa.gov/designeesearch.asp.

Typically the person performing the maintenance will prepare the form. Most of the information required is pretty straightforward, with some parts calling for a bit more time and effort such as the drawings, design, and specifications of the procedure. Once you have the required data, the drill is to submit it to an ASI or DAR. That individual can hand off or ask another ASI for help, go out for an engineering assist, approve the package, or deny it. If it should be denied, the reasons for that decision will be provided in writing.

If the denial indicates the need for a supplemental type certificate (STC) that means the action is beyond field-level approval. The requester will have to file for a STC or an amended TC (http://go.usa.gov/DbYR). Engineering assists usually occur when the request involves something that has rarely been tried or is unique in concept. Such cases may require additional coordination with a designated engineering representative (DER) in order to ensure that the end design does not render the aircraft unsafe. The package can also go out for evaluation, meaning the procedure does not automatically qualify for a field approval and that it will require further data to review.

If approved, your Form 337 will return with the appropriate signatures (blocks 3, 6 and 7) indicating everything has been (will be) done in accordance with the regulation and the aircraft is approved for return to service. That last part might require a field inspection or a check flight, but once accomplished, the rest is just filing the paperwork. This is done in duplicate, with one signed copy going to the aircraft logs and the other copy heading to the Aircraft Registration Branch of the FAA. This submission should be done within 48 hours of the aircraft being returned to service.

Evolving — little tweaks here and there that make things better, easier, or less time consuming — is a fundamental part of what makes humans human. By taking steps to make sure we don't inadvertently put ourselves or others in peril in the interim, we prove that our safety conscious has evolved as well. Cue simian-like grunts for that.

TOM HOFFMANN

Going the Wrong "Way"

A Tale of Taxi Cabs and Taxiways

Learning to drive in New York City was definitely not without its challenges. I recall the frantically busy streets of Flushing, Queens, as the proving grounds for getting my license. If you can drive a car here, you can drive it anywhere, right? So I thought.

During driving school I was confident I was being exposed to every roadway hazard imaginable: detours, construction zones, emergency vehicles, jaywalkers, and piano-sized pot holes. You name it; we drove through, over, or around it! Safely, I might add.

Despite my perceived prowess behind the wheel, I was in for a rude awakening one December morning when I offered to drive a few friends into Manhattan for some Christmas shopping. At a rather large intersection, I made what I thought was a routine left turn onto a two-way street. It was instead a six-lane one-way street with what looked like a sea of yellow cabs careening towards me. You can imagine my panicked reaction. Luckily, I was able to shuffle in to a vacant parking spot to avoid the swarm of oncoming vehicles before sheepishly making a 180-degree turn.

So what happened? How could I make such a big mistake? "Did you not see the one-way sign?" shouted the peanut gallery from the back seat. Truth is it was pretty hard to notice among the throng of parking and bus stop signs, not to mention all of the double-parked delivery vans. Excuses aside, I should have been more careful. It just goes to show that expecting something to always be a "certain way" can end up being your downfall. Thankfully it was a taxi cab and not a Cessna Citation screaming towards me.

Unfortunately, that same type of mistake at an airport is more common than you might think. Sometimes obscured visibility, inoperative or unfamiliar airport signage/lighting, or confusing intersections (known as hot spots), can cause you to mistake a taxiway for a runway (or vice versa), and lead you right into a dangerous incursion.

In our last issue, pilot and famed astronaut Eugene Cernan provided a first-hand account of a runway/taxiway mix-up which resulted in a runway incursion. Thankfully there was a safe outcome, but his mistake could have easily led to an incident or accident. In his article, Cernan confessed he fell victim to distraction and a lack of situational awareness in which he mistook a remarkably similar airport layout for his home field.

The problem isn't just on takeoff either. Consider Delta Air Lines Flight 60 in October 2009. The Boeing 767, on a pre-dawn arrival from Rio de Janeiro, landed on Taxiway M at Hartsfield-Jackson Atlanta International Airport. No damage or injuries were reported, but you can only imagine the catastrophe that would have ensued had the taxiway been occupied. Contributing factors to this incident included unavailable runway approach lighting and an intermixing of lighting technologies on the taxiway.

Another factor that can complicate things is the use of runways as taxiways at some airports. If unprepared or unfamiliar with this type of operation, you can wind up in a jam before you know it. To help reduce the risks of a runway incursion in these situations, the FAA released a Safety Alert for Operators (SAFO) last August that provides some important safety tips.

The SAFO highlights the need for pilots to be aware of some important visual differences when using a runway as a taxiway. "Due to the wide field of vision, signs located on the edge of a runway may be more difficult for the pilot to see and identify than those on the edge of a taxiway." The SAFO also stresses the importance of runway-to-runway crossing points, which are frequently missing many of the signs, lights, and markings you'd find on a taxiway/runway intersection.

It might seem obvious to some pilots, but focusing on your surroundings and understanding what can blur the distinction between a runway and taxiway can really go a long way in making sure you head out the right "way" each time.

Now, if you'll excuse me, I have some *online* Christmas shopping to do.

Tom Hoffmann is the managing editor of the FAA Safety Briefing. *He is a commercial pilot and holds an A&P certificate*

Learn More

"It Can Happen to You" FAA Safety Briefing, September/October 2013
www.faa.gov/news/safety_briefing

Safety Alert for Operators (SAFO) 13007 – Using Runways as Taxiways
http://go.usa.gov/DVaA

GENE TRAINOR

One Decision – Many Consequences

Saving a life — possibly your own — can depend on a single decision. And that decision can have lasting consequences for your family.

On August 13, 2005, two helicopters lifted off from the Vancouver airport en route to Astoria, Oregon, to videotape a ceremonial run along a beach. Four people — part of a group retracing the path of Meriwether Lewis and William Clark's 1804-1806 journey through the western United States — were in one helicopter, three in the other. Back in her home, Debra Koren Lilburn was playing a board game with her 7-year-old son, David, when she received the call that the helicopter flying her husband, video journalist Tod Lilburn, was missing.

She and David prayed. They hoped that the helicopter had just gone off course. Eventually, though, she received confirmation that her husband of twelve years had been killed in a helicopter crash in the Pacific Ocean. "It was devastating," she said. "You can't breathe. I am there with my son, and I'm trying not to be hysterical in front of him."

Thousands of Americans across the country are grieving the loss of loved ones who have died in helicopter accidents. Most accidents — 84 percent according to an FAA/International Helicopter Safety Team (IHST) study — are a result of pilot judgment and actions.

For years the FAA Rotorcraft Directorate and the Virginia-based IHST have been issuing news releases, reports, checklists and articles emphasizing safe flying. These materials also address the human element in helicopter safety, but nobody can convey that message more powerfully than someone like Lilburn. If there is a single message she wants to get across, it is that pilots should not be overconfident. They should ask themselves if the risk is worth the potential loss of life.

The pilots in the Oregon accident had flown into fog. "It was a clear day when we took off," a witness wrote in her statement. "We were flying over hills of evergreens, but after a distance, we came over a hill and saw a thick layer of fog ahead of us." As they approached the fog, the most experienced pilots in the two helicopters communicated about whether to proceed. They decided to go for it but, as another witness reported, "Once we got into the cloud, I could not see anything but white mist."

They could have just waited for the fog to lift, Lilburn noted. "There was nothing time urgent about this (flight)."

According to a 2011 IHST accident analysis report, accidents such as the one cited above are frequently due to the pilot's decision to continue despite critical cues of impending weather deterioration. The Joint Helicopter Safety Intervention Team training work group and safety management system (SMS) work group have issued multiple helicopter fact sheets and safety bulletins on the topic and the SMS work group has created a toolkit that operators can use to help implement risk management and SMS into their organizations. To learn more you can check out www.ihst.org under the "safety tools" menu. Improving go/no-go decision making training and risk management, as well as utilizing risk mitigation and assessment tools (to include weather trend analysis), can lead to increased awareness and better decisions for a successful outcome.

The business of saving a life isn't just reserved for helicopter air ambulance crews. Every decision you make as a pilot can be life-saving. Sometimes saying "no" to a flight request or to continuing a flight can be a difficult decision to make, but it is in that moment that your job as a pilot has less to do with hands-on flying and more to do with discerning when *not* to fly.

For Debra Koren Lilburn and her family, the consequences of a poor decision have drastically altered their day-to-day life. "As awful as these things are," she laments, "we still had to find a way somehow to go on."

FAA Rotorcraft Directorate Manager Kim Smith has a similar message. "Awareness is something we need to have all of the time, not just when it is convenient." We may only begin to realize a meaningful reduction in accidents when we, as an industry, collectively choose to hold higher esteem for the pilot who rightly decides it is safer to not fly or to abort in any phase of flight, rather than for the pilot who decides to "go for it" despite the risks.

Gene Trainor is a technical writer and editor for the Rotorcraft Directorate in Fort Worth. Contributing to this article was Ellen Turcio, an Aviation Safety Inspector (rotorcraft-helicopter) for the General Aviation and Commercial Division in Washington, D.C.

Flight Forum

Climate Control

In reference to Postflight in the May/June 2013 edition of *FAA Safety Briefing*, I just wanted to say it was a nice article. I am a student pilot and hopefully will be a private pilot in the next few weeks and I have also noticed that the "learn to fly" signs are everywhere but it seems they either lead you to a locked gate or a "do not enter" sign. Sometimes it is not the most welcoming community for those of us who want to learn and have thousands of dollars to spend on it.

— Nachum

Thanks for the note and the feedback. We are glad you liked the article, but at the same time, we're sorry that the experiences mentioned are common enough to resonate with you, and even sorrier that things haven't changed much. It is our hope that we can collectively do something to change that. Good luck in your continued training and congratulations in advance on your private pilot certificate!

Worthy Collection

I have finished reading the July/Aug edition of *FAA Safety Briefing* and I wanted to take a moment to tell the team that puts this magazine together to just keep doing what you do! Every single one of the articles in the mag is top-notch, useful, and thought-provoking. Thanks for such a great product. It is one that is worthy having as a collection on any pilot's bookshelf.

— Dave

Thank you very much for such kind words. We work very hard to keep the content of FAA Safety Briefing *informative and relevant, while still managing to entertain. We are pleased to hear that you have found us to be successful. Happy reading!*

Keys to Survival

As a longtime survival instructor, I read what I can on the subject and always evaluate survival advice on the 6 Cs. Each survival kit should include one or more capabilities in each of the following categories: combustion, cutting, cordage, cover, containment (collecting water), and communication. Some people also add consumption, as in snacks. In all situations, knowledge (like knowing CPR) is the key to survival and I think you got that right.

— Craig

Sometimes it is hard to stop and think about "what if" but it is always a safe and prudent idea to plan for the worst, just in case. Thanks for the clever way of addressing key components of an effective survival kit, and thanks for reading. We appreciate your input.

Time Travel Denied

An aviation medical examiner had an airman in his office completing his MedXPress application using the AME's computer. The airman was attempting to enter the date of his most recent exam which had been accomplished in January of 2012. However, each time the airman entered the exam date, he got an error message stating that he could not enter a future date for a previous exam. Needless to say, the airman and the AME were very frustrated. As it turns out, the AME had installed his computer in 2004 and never updated the system clock. Consequently, the system would not let the airman enter a date that it "thought" was eight years into the future. Remember to keep your system's clock up to date!

— David

Thanks for this head's up as we are sure you are not likely the only person to have encountered an error such as this. The suggestion has been made to push a software patch that ensures the system relates only to the time on the main server, versus whatever might be on an individual's computer and we forwarded it to the people responsible for the program. Hopefully we can make sure this sort of delay in information processing doesn't happen again!

FAA Safety Briefing welcomes comments. We may edit letters for style and/or length. If we have more than one letter on a topic, we will select a representative letter to publish. Because of publishing schedule, responses may not appear for several issues. While we do not print anonymous letters, we will withhold names or send personal replies upon request. If you have a concern with an immediate FAA operational issue, contact your local Flight Standards District Office or air traffic facility. Send letters to: Editor, *FAA Safety Briefing*, AFS-805, 800 Independence Avenue, SW, Washington, DC 20591, or email SafetyBriefing@faa.gov.

Let us hear from you — comments, suggestions, and questions: email SafetyBriefing@faa.gov or use a smartphone QR reader to go "VFR-direct" to our mailbox.

SUSAN PARSON

A Smudge on the Mirror

Don't worry when you are not recognized, but strive to be worthy of recognition.

— Abraham Lincoln

Even in the midst of my tenth year working for the FAA, I am still surprised and, I admit, sometimes frustrated by some of the jabs and jibes directed at my employer, at my colleagues, and sometimes at me personally. Even if cloaked in jest, some of the taunts I hear often have a sharp edge.

Notwithstanding my status as a happy and enthusiastic FAA employee, I understand that regulatory agencies are rarely (if ever) popular with those they regulate. I would never attempt to argue that this particular regulatory agency gets it right every time. We are not alone in that regard. On the contrary, no organization staffed by imperfect human beings has any hope of operating in a perfect or even near-perfect way.

Mirror, Mirror

Some of the most important work that FAA employees perform is often taken for granted. It is largely invisible to the public because accidents and incidents that might otherwise occur never happen in the first place. A former FAA Administrator frequently used a mirror metaphor to illustrate the "heads I win, tails you lose" frustration he sometimes felt about the constant barrage of criticism over what the FAA does or, in some cases, does not do: "A mirror can be 99.9999 percent clean, but nobody sees anything except the one small thumbprint smudge in the corner."

Even when there are accidents, most people don't realize how the FAA's work has minimized loss of life and property.

Aviation safety in the United States is much like the 99.9999 percent perfectly clean mirror. Even when there are accidents, most people don't realize how the FAA's work has minimized loss of life and property. Not long ago, for example, there was another "miracle on the Hudson" when an air tour helicopter lost power over the river. The pilot deployed inflatable pontoons — a safety device that the Flight Standards Service fought to include in the air tour rule. The pilot and the family of four aboard his aircraft all walked away unharmed.

Or consider the San Francisco crash of a foreign airline's B-777. The footage is terrifying, but many passengers escaped with minor injuries. That is partly due to FAA safety leadership in the international aviation community. Flight Standards Service employees work with their counterparts around the world to ensure that carriers flying to the U.S. operate in accordance with ICAO standards.

Continuous Improvement

The FAA is staffed by a large number of people who truly care about aviation. That is true throughout the agency, but I can speak most knowledgeably about the folks in the Flight Standards Service. Lots of us fly for fun, just like you. We care about safety. And we care about doing our jobs in a correct and professional way. I believe the examples above, along with the Cactus 1549 contributions described in "Our Finest Hour" on page 6, illustrate a record that is worthy of pride. But we can always do better, and we owe it to the American public to ensure that we constantly strive to do so.

Susan Parson (susan.parson@faa.gov, or @avi8rix for Twitter fans) is editor of FAA Safety Briefing. *She is an active general aviation pilot and flight instructor.*

SUSAN PARSON

FAA Faces

John Duncan

Introducing the New Flight Standards Service Director

If you've been to any of the major air shows in the past few years, it's possible that you've seen or maybe even met John Duncan, who succeeded John Allen as FAA Flight Standards Service (AFS) director in September. An enthusiastic aviator, John is a regular at events like Sun 'n Fun and EAA AirVenture. You might think it was just part of his job as an FAA employee, but it's a lot more than that. John often attends for a few days in his official capacity, but then takes leave so he can enjoy the show as just another pilot.

That personal participation time was particularly important to him for AirVenture 2013 because John had the pleasure and privilege of introducing several members of his family to aviation's premier event. Though not everyone in the Duncan family's excellent adventure to AirVenture was an immediate convert to aviation ("geez, Grandpa — *another* airplane??"), it was still a great family outing. "I rented an RV to make sure everyone would be comfortable with the camping part," notes John, "and I think the trip did spark some interest in flying."

In other years, John has been part of the Cherokee mass arrival to Oshkosh, piloting his own Warrenton-based (KHWY) airplane from Virginia to Wisconsin. Before he was sidetracked by a medical issue last fall, John often spent weekends plying the skies over northern Virginia for fun and recreation, which included teaching his son to fly. Monday morning staff meetings often featured iPad showings of weekend flight lesson videos captured with John's onboard camera. "I'm eager to get my medical back," says John. "I'm anxious to get back in the sky, and to finish training my son for his private pilot certificate. I'm also tired of having to apologize to my airplane every weekend."

Aviation has been a part of John's life since 1964 when he started flying in Titusville, Florida. He spent the next two decades earning a collection of certificates and ratings, to include an ATP with commercial privileges in seaplanes and gliders and, of course, CFI. He also built an industry flying career that included waypoints familiar to anyone in the business — flight instructor, chief pilot, chief flight instructor, corporate pilot, and air carrier pilot.

John joined the FAA as an Aviation Safety Inspector in Cincinnati, Ohio, in 1986, where he served as a principal operations inspector and unit supervisor. He moved to Texas in 1992 to work as manager of the Houston Flight Standards District Office, where his responsibilities included the Continental Airlines and Continental Express air carrier certificates as well as a wide range of general aviation activities. He served as the Assistant Flight Standards Division Manager for the Central Region in 1997, and then moved to Anchorage to be the Alaskan Region Flight Standards Division manager. "You really develop a strong appreciation for both the importance of GA and the full range of safety challenges in a place like Alaska," says John.

After almost a decade in the 49th state, John moved to Washington, D.C., in January 2007 to become manager of the General Aviation and Commercial Division (AFS-800). He was soon asked to take over as manager of the Air Transportation Division (AFS-200), a position he held until he became the AFS deputy director for policy starting in March 2012. "John Allen is one of the leaders who inspired me to move to headquarters," says the new AFS director. "He gave his team an extraordinary opportunity to influence the course he set for this organization." In his role as AFS deputy, John Duncan was closely involved in long-term strategic planning for issues such as the Safety Assurance System (SAS), compliance assurance, and envisioning the future of AFS. Those projects will continue under John's leadership.

"Flight Standards has been my professional home for nearly three decades," John observes. "I've had lots of aviation jobs before I joined the FAA, but I can't think of any workplace that could offer more challenging opportunities for service and professional growth in work that truly matters. We make a difference, and I am humbled by the opportunity to lead this organization."

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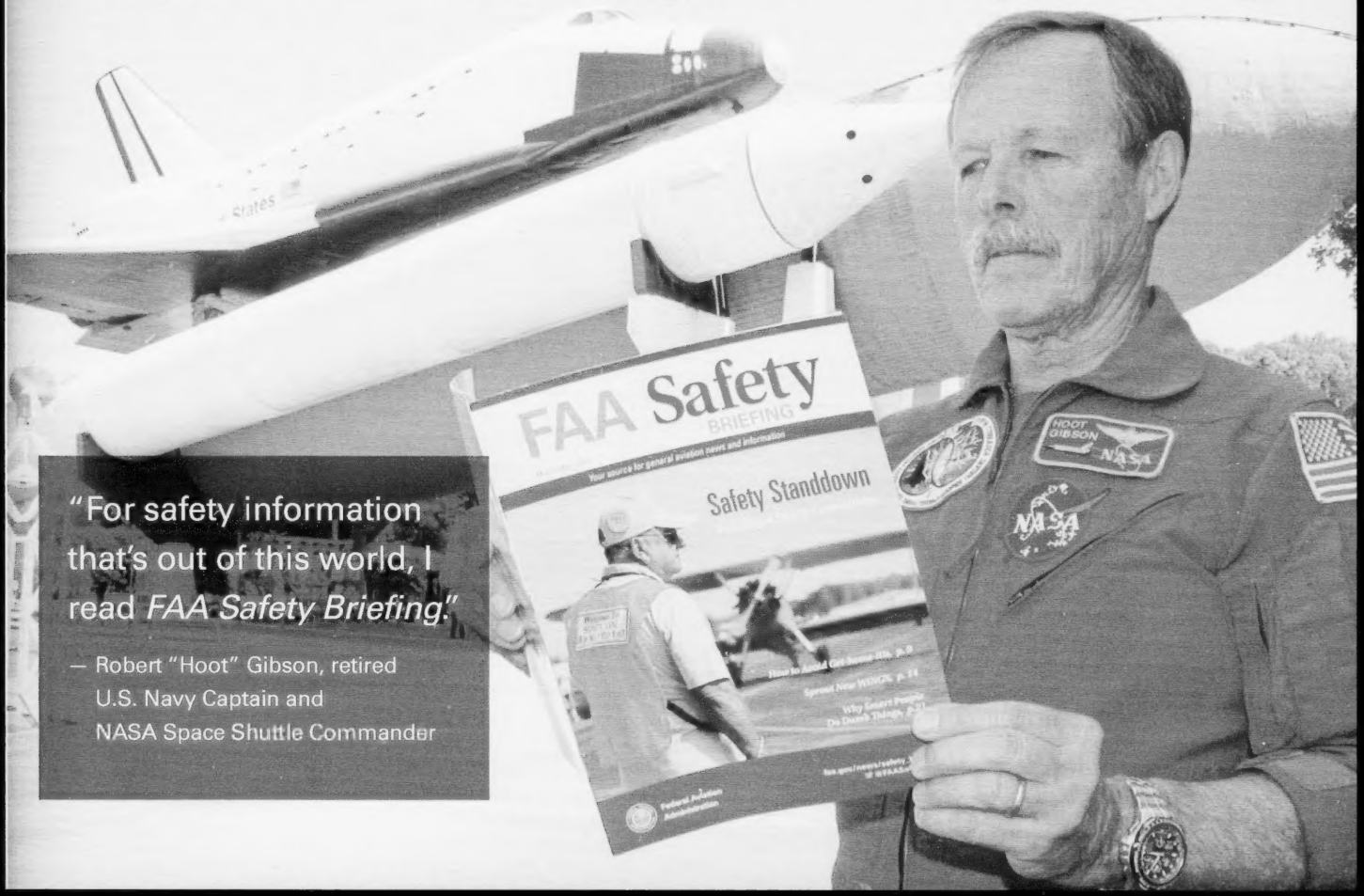

"For safety information that's out of this world, I read *FAA Safety Briefing*."

— Robert "Hoot" Gibson, retired U.S. Navy Captain and NASA Space Shuttle Commander